Is parental attachment security contextual? Exploring context-specific child-parent attachment in relation to children's psychological well/ill-being
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Abstract

Attachment-related experiences with parents during later childhood and later adolescence have considerable and prolonged influence on personal growth, interpersonal relationships, and psychological well/ill-being. No research to date has explored the possibility of context-specific, within-person fluctuation in attachment security, especially within a specific child-parent relationship. The thesis is written as a collection of four research papers (combining three quantitative and one qualitative studies) to comprehensively investigate how context-specific attachment within a specific child-parent relationship in relation to children's psychological outcomes with the intention of addressing gaps in the literature and advancing our understanding of the nature of context-specific attachment and how it relates to children's well/ill-being through an approach of mixed-method methodology.

Study 1 was aimed to develop and validate the Traditional-Chinese version of contextual attachment scales to assess youth athletes' attachment styles with a given parent within the context of sport (CAS-S) and academics (CAS-A) by employing two cross-sectional design. Results revealed that both scales can be considered as well-validated attachment instruments in their current version and have considerable contributions to existing attachment instruments and research in context-specific parental attachment.

Study 2 was aimed to explore fluctuations in within-parent attachment security between the contexts of sport and academics, in relation to global attachment patterns and indicators of psychological wellbeing by utilizing CASs validated in study one. Results indicated that youth can and do perceive within-parent attachment patterns differently depending upon context but that the relationship of such differences to context-specific outcomes is complex. Of particular interest was that the *degree* of within-parent attachment variability between contexts was clearly and negatively related to indices of psychological wellbeing. This suggests that contextual variation may be a meaningful and useful way to explore within-parent attachment fluctuation.

Study 3 was aimed to explore the mechanism of how perceived context-specific attachment influences youth's self-concept and depressive symptoms through the mediating role of youths' experiences of need satisfaction and need frustration in specific contexts. Results supported our expected primary and cross-context pathways in both of structural models, which (1) perceived sport-specific and academic-specific security can positively influence youths' self-concept through their experiences of need satisfaction in the context of

sport and academic respectively (bright pathway), (2) the influence of perceived sport-specific and academic-specific insecurity on youths' depressive symptoms can be positively mediated by their experiences of sport-specific and academic-specific need frustration separately (dark pathways), (3) cross-contextual effects also can be found in both of the mediation models. Generally, this study expressed an important message, that is, the contexts of sport and academics could be two influential within-parent socialization platforms that concurrently exert unique and context-specific pathways responsible for shaping youths' feelings of need satisfaction and need frustration in both contexts and ultimately linking to well/ill-being.

Study 4 was aimed to qualitatively explore the nature of contextual attachment within a child-parent relationship in relation to children's psychological outcomes through the lens of Self-Determination Theory (SDT). Results showed that children's perceived parental timely and sensitive responsiveness as well as empathetic concern relating to children's sport and academic life were two common secure attachment characteristics across the contexts. In contrast, perceived parental over and unresponsiveness as well as lack of empathetic concerns were two shared insecure attachment features across two contexts. Furthermore, the possible explanations for parents' contextually-different behaviours were (1) parents' over-expectation / sensible expectation on children's ability in academics and that might frustrate / fulfil children's need for competence and autonomy in their academic-related activities, (2) parents' perceptions of interest (enjoyment) / utility value of children's participating in sport and that could be in relation to children's need satisfaction / need frustration for competence and autonomy in children's sport-related activities. Overall, the results indicated that the context-specific attachment could be considered as a promising concept to explore child-parent relationship fluctuation and how this variation might affect children's psychological outcomes.

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Chapter 1

General Introduction

Bowlby's (1962/1989) attachment theory has been employed as a broad and integrative framework to explore human wellness across a range of disciplines. Attachment theory has even been labelled one of the last surviving "grand theories" not to have been completely dismissed, replaced, or extensively reworked (e.g., Carr, 2012; Mercer, 2011). Initially, Bowlby (1969/1982) drew upon the notion of behavioural systems to describe the processes by which human beings organize behaviour in response to inevitable environmental changes and demands to maximise chances of survival and reproduction. Normally, attachment behavioural system could be activated to secure care or protection from selected caregivers when individuals encounter environmental threats, stressors or difficult situations (also see Mikulincer & Shaver, 2014). The process of experiencing a sense of security can, over time, help to develop a prototypical "secure base script" around key issues such as the possibility of coping with threat, obtaining care and support, and managing negative emotion in future interpersonal relationships (Mikulincer, Shaver, Sapir-Lavid, & Avihou-Kanza, 2009; H. S. Waters & E. Waters, 2006). When a selected caregiver fails to meet needs for comfort and care during times of distress, the attachment system can be adjusted and certain secondary attachment strategies (e.g., hyper-activation and deactivation) are likely to be activated in accordance with situational demands (Cassidy & Kobak, 1988; Main, 1990).

Ainsworth (1967) initially conceptualized a child's interactions with the primary caregiver into three major attachment styles — secure, insecure-anxious, and insecure-avoidant. Such prototype-like attachment styles reflect the most chronically accessible working model. Children with a secure attachment relationship with the primary caregiver usually hold advantageous working models of successful proximity-seeking and attainment of security because of predominantly attentive, empathic, and supportive responses to emotional needs, especially during vulnerable moments. Children who receive such secure responses from parents may consider themselves worthy of being loved by others and feel confident and able to seek support as well as emotional relief from parents when they feel upset, threatened, or stressed (Ainsworth et al., 1978). In contrast, a child classified as insecure-anxious tends to access working models of attachment characterised by hyper-activation to acquire the goal of felt-security. Typically, anxious children's maladaptive attachment behaviours are a reflection of inconsistent and lacking responses to seeking emotional support (Ainsworth et al., 1978). Children with insecure-avoidant attachment

models tend to deactivate security-seeking behaviour and have typically experienced significant neglect, rejection, and unresponsiveness in relation to proximity-seeking attempts (Ainsworth et al., 1978).

Attachment-related experiences with primary caregivers (normally parents) at early developmental stages (i.e., from infancy until later adolescence) have considerable and prolonged influence on personal growth, interpersonal relationships, and psychological well/ill-being (Bowlby, 1969/1982, 1973, 1982; Mikulincer & Shaver, 2016). Because attachment process is majorly based on how individuals learnt to deal with negative emotion and fragility through their interactions with primary caregivers and that learnt experiences can affect their development of emotion regulation as well as become future mental concerns (Shaver, Schwarts, Kirson, & O'Connor, 1987; Mikulincer & Shaver, 2016). For example, an anxiously attached child is likely to develop a dangerous, hopeless, and unpredictable working model of world as a result of an attachment figure's inconsistent and unreliable responses. This type of insecure children not only doubt their worth and efficacy for being loved and protected by a selected caregiver in times of need, but the unfulfilled needs of "felt-security" also cause them to intensify negative emotions (e.g., angry and cry) or implicitly accent their vulnerability and neediness (e.g., anxiety, fear, and shame) as a "down-regulation" strategy for their goal pursuance (i.e., gain a protector's attention or care). They are disadvantageous to learn how to use well-adapted approaches to regulate "negative emotion" from maladaptive parenting, instead, using "negative emotion" as a strategy to capture attachment security. Suffering from chronic emotional dysfunction, despite increasing the likelihood of capturing a caregiver's attention and protection, children's constantly unmanageable cognition and feelings of angry, fear, and anxiety can be transformed into mental problems (e.g., depression or anxiety disorders) (Mikulincer & Shaver, 2016).

Comparing to insecure-anxious ones, avoidant children are normally nurtured in a neglected, unresponsive, and emotionally-distant parenting environment. Their painful interaction experiences with cool and rejective parents encourage the development of deactivation (defensive inhibition) strategy to avoid themselves from involving in any emotional states (e.g., fear, anxiety, anger, sadness, and distress) when facing with threats or distress, because these negative emotions may induce attachment system activated (i.e., proximity seeking) and arise disappointed and depressive experiences and emotion (Mikulincer & Shaver, 2016). Unlike the emotional regulation strategy of securely attached ones (e.g., communication, compromise, relationship maintenance), avoidant children are

preferred to use self-reliance approach (e.g., block negative emotions, switch off any emotion-related attentions, inhibit the expression of emotion) to minimize the risks of suffering from emotional disturbance (Mikulincer & Shaver, 2016). However, keeping interpersonal distant and suppressing negative emotion can leave unresolved distress behind, and disable one's ability to handle with unexpected life adversities, especially when they encounter long-term and highly stressful situations. These insecure individual's emotional defensive systems can be transformed to psychological disorders (Mikulincer & Shaver, 2016). A review of previous attachment-based psychopathological studies (see Mikulincer & Shaver, 2016) have shown that insecure attachment patterns could be substantially associated with one's internalized mental problems (e.g., anxiety disorders, depression, post-traumatic stress disorder) and externalized behavioural issues (e.g., suicide tendencies, eating disorders, substance abuse, criminal behaviours, personality disorders, and dissociative disorders) (e.g., Brumariu & Kerns, 2013; Milan, Zone, & Snow, 2013; Cassidy, 1995; Cotlib, Mount, Cordy, & Whiffen, 1988; Enns, Cox, & Clara, 2002).

The stability and change of internal working models of attachment have been broadly explored and discussed in the literature (e.g., Carr, 2012; Fraley, 2002; Klohnen & Brea, 1998; Simpson, Collins, Tran, & Haydon, 2007; Dykas & Cassidy, 2011). Understanding and exploring fluctuation in attachment styles across the lifespan is conceptually challenging and highly complex. Empirical research in the social psychological tradition has begun to explore fluctuation of attachment models across the lifespan and within specific relationships (e.g., Davila & Sargent, 2003; La Guardia, Ryan, Couchman, & Deci, 2000; Fraley & Davis, 1997; Trinke & Bartholomew, 1997; Collins & Read, 1994; Pierce & Lydon, 2001; Overall, Fletcher, & Friesen, 2003; Gillath, Karantzas, & Fraley, 2016). For example, Gillath et al.'s (2016) hierarchical perspective presumed that within a given relationship episodic/state-like factors may temporarily shape attachment representations, giving rise to state-like, episodic attachment representations that may fluctuate over time. Furthermore, Girme et al. (2018) also recently identified that within-person variation in attachment security was possible over time and that such variation impacts psychological wellbeing because it contributes to a lack of consistency that can be particularly challenging for securely attached individuals who "expect" consistency.

Following previous findings, we suggest it may also be important to consider "contextual representations" of attachment, which might be referred to as a series of repeated momentary episodes that cluster around a given context and seem to relate to meaningful "contextual variability" within a specific relationship. For instance, in the context of child-

parent relationships, there may be particular parental behaviours attached to a given context (e.g., sport or academics) that trigger or shape individuals' attachment representations with the parent in that specific domain but not in other contexts where interactions with the same parent occur. Furthermore, individuals' attachment orientations within a given relationship on this contextual level may be shaped by lower (e.g., episodic) and/or higher (e.g., global) order levels, which might mean that context-specific schema act as mediators to connect global and episodic levels of specificity by means of top-down and bottom-up operation.

1.1 Aims of this Thesis

Attachment-related experiences with primary caregivers (normally parents) at early developmental stages (i.e., from infancy until later adolescence) have considerable and prolonged influence on personal growth, interpersonal relationships, and psychological well/ill-being (Bowlby, 1969/1982, 1973, 1982; Mikulincer and Shaver, 2016). No research to date has explored the possibility of context-specific, within-person fluctuation in attachment security, especially within a specific child-parent relationship. The ultimate aim of this theory was therefore to explore if parental attachment is a contextual structure and how context-specific child-parent attachment relationships in relation to children's psychological well/ill-being.

1.2 Outline of Studies

Four distinct, but related, research (combining three quantitative and one qualitative studies) included in this thesis investigated how context-specific attachment within a specific child-parent relationship in relation to children's psychological outcomes with the intention of addressing gaps in the literature and advancing our understanding of the nature of context-specific attachment and how it relates to children's well/ill-being through an approach of mixed-method methodology. The following section provides a brief overview of the specific aims and research questions of each study.

1.2.1 Study 1: Development and validation of the Contextual Attachment Scale (CAS) in Traditional-Chinese version

The objective of this study was to develop and validate the Traditional-Chinese version of contextual attachment scales to assess Taiwanese youth athletes' attachment styles with a given parent within the context of sport (CAS-S) and academics (CAS-A) by employing a two cross-sectional research design.

1.2.2 Study 2: Is parental attachment security contextual? Exploring context-specific child-parent attachment patterns and psychological well-being in Taiwanese youths

Based on the proposed concept of contextual attachment and hierarchical structure representations within specific relationships in chapter two (literature review), study 2 was to explore the contextual structure of parental attachment and their associations with children's global-level attachment characteristics and psychological-related outcomes by utilizing CASs validated in chapter three (study one). More specifically, a cross-sectional study was designed to explore (1) whether youths' attachment schemata in relation to a particular parent could vary across contexts, (2) whether contextually-different attachment profiles associate with youths' perceived global and context-specific psychological need satisfaction and need frustration, as well as self-concept and depression, (3) whether the degree of fluctuation in parental attachment security between contexts relates to youths' global psychological need satisfaction and frustration, self-concept, and depression.

1.2.3 Study 3: Does child-parent attachment in the contexts of sport and academics relate to well/ill-being through unique pathways? The mediating role of context-specific need satisfaction and need frustration

Study 3 based on the findings of study 2 suggesting the individual contribution of different context-specific attachment schemata within a given relationship should be considered because they may each have relatively unique and distinguishable links to adaptive and maladaptive psychological outcomes. This study aimed, grounded on attachment theory and self-determination theory (SDT), to explore the mechanism of how perceived context-specific attachment influences youth's self-concept and depressive symptoms through the mediating role of youths' experiences of need satisfaction and need frustration in specific contexts.

1.2.4 Study 4: Qualitatively exploring the nature of contextual attachment within child-parent relationship

Study 4 aimed to further understand the nature of the reported contextual attachment within child-parent relationship in the quantitative findings (study one to three) and attachment differences across the contexts of sport and academics through

a qualitative exploration of child and parent experiences. Two key research questions were guided for achieving this aim: (1) What are children's experiences of contextual attachment across the contexts of sport and academics? (2) What could explain these contextually-different experiences in relation to children's psychological outcomes? This study is expected to practically provide parenting suggestions and guidance, particularly in the contexts of sport and academics.

Chapter 2

Literature Review

The ultimate aim of this theory was to explore if parental attachment can be a contextual structure and how context-specific child-parent attachment relationships in relation to children's psychological well/ill-being. This second chapter of the thesis provides a review of the literature to establish the research area which are surrounding three major issues (1) attachment theory, (2) the conceptual links between attachment theory and self-determination theory, (3) cultural considerations.

2.1 Basic tenets of attachment theory

Bowlby (1969/1982) drew upon the notion of behavioural systems (based upon the idea of biologically evolved neural programs) to describe the processes by which human beings organize behaviour in response to inevitable environmental changes and demands to maximize chances of survival and reproduction. According to Bowlby's (1969/1982) propositions, the biological function of the attachment system ensures that infants seek out a stronger, wiser, and protective attachment figure for proximity maintenance and protection, support, and care, especially during dangerous or difficult situations (also see Mikulincer & Shaver, 2014). Normally, when individuals encounter environmental threats or stressors the attachment system is activated to secure care or protection from selected caregivers. When these systems are deactivated or when dangers/threats are not present, the attachment system is quietened, and psychological energy can be devoted to exploration or other activities (Bowlby, 1969/1982). Specifically, obtaining a sense of security is the goal of such attachment behaviour (especially when encountering actual or symbolic threat and/or where a reliable caregiver is not available or responsive) and the attainment of "felt-security" deactivates further attachment-related efforts (see Sroufe & Waters, 1977). The process of experiencing a sense of security can, over time, help to develop a prototypical "secure base script" around key issues such as the possibility of coping with threat, obtaining care and support, and managing negative emotion in future interpersonal relationships (Mikulincer, Shaver, Sapir-Lavid, & Avihou-Kanza, 2009; Waters & Waters, 2006).

When a selected caregiver fails to meet needs for comfort and care during times of distress, then the primary attachment strategy is unable to accomplish the goal of felt-security. In such cases, the attachment system can be adjusted and certain secondary attachment strategies (e.g., hyper-activation and deactivation) are likely to be activated in accordance with

situational demands (Cassidy & Kobak, 1988; Main, 1990). For instance, a person may adopt hyper-activation strategies, such as intensifying proximity seeking efforts to secure love, care, and attention from caregivers and to deal with frustrated attachment needs. Deactivation strategies (labelled "compulsory self-reliance" by Bowlby), on the other hand, tend to involve the suppression of attachment needs. Normally, an individual learns to use deactivation strategies to deal with threat and distress and to avoid the disappointment, frustration, and pain that comes from lack of caregiver availability (Bowlby, 1969/1982).

Ainsworth (1967) initially conceptualized a child's interactions with the primary caregiver into three major attachment styles — secure, insecure-anxious, and insecure-avoidant. Such prototype-like attachment styles reflect the most chronically accessible working model. Children with a secure attachment relationship with the primary caregiver usually hold advantageous working models of successful proximity-seeking and attainment of security because of predominantly attentive, empathic, and supportive responses to emotional needs, especially during vulnerable moments. Children who receive such secure responses from parents may consider themselves worthy of being loved by others and feel confident and able to seek support and emotional relief from parents when they feel upset, threatened, or stressed (Ainsworth et al., 1978). In contrast, a child classified as insecure-anxious tends to access working models of attachment characterised by hyper-activation to acquire the goal of felt-security. Typically, anxious children's maladaptive attachment behaviours are the reflection of inconsistent and lacking responses to seeking emotional support (Ainsworth et al., 1978). Children with insecure-avoidant attachment models tend to deactivate security-seeking behaviour and have typically experienced significant neglect, rejection, and unresponsiveness in relation to proximity-seeking attempts (Ainsworth et al., 1978).

2.2 Continuity, stability, and fluctuation of attachment styles

The stability and change of internal working models of attachment have been broadly explored and discussed in the literature (e.g., Carr, 2012; Fraley, 2002; Klohnen & Brea, 1998; Simpson, Collins, Tran, & Haydon, 2007; Dykas & Cassidy, 2011). Understanding and exploring fluctuation in attachment styles across the lifespan is conceptually challenging and highly complex. Initially, Bowlby (1973) argued that attachment representations can be spontaneously operated by both processes of "assimilation" and "accommodation," where individuals not only integrate new experiences into existing mental representations but also revise previous working models to accommodate current attachment associative experiences.

For example, some attachment theorists (e.g., Crowell & Waters, 2005; Fraley, 2002) have proposed a "prototype perspective," suggesting that there are two separate working models ("prototype-like" and "current" working models) that concurrently function to shape a person's "phase-specific" attachment characteristics. From this perspective, a person's "current working models" can be revised and updated throughout the lifespan when "present experiences" of attachment deviate from prototypical attachment beliefs and knowledge that have been formed in childhood (a "prototype working model" is thought to be rooted in a person's infancy). In other words, while a person's "prototypical working model" plays a fundamental and prevailing role in retaining early attachment trends, such models can still incorporate incompatible attachment experiences from later developmental phases and present experiences, resulting in structural/qualitative changes in phase-specific attachment schemata. For instance, when securely attached adolescents (who may have developed secure working models during infancy and childhood) frequently experience being rejected or neglected by attachment figures, their existing security may be compounded by these continually conflicting experiences and memories (see Mikulincer & Shaver, 2016, p.112).

A few researchers (Allen & Miga, 2010; Shiller, 2017; Buist, Dekovic, Meeus, & van Aken, 2003) interested in the issue of stability and fluctuation in attachment in childhood and adolescence have suggested that individual's attachment relationships with their parents during adolescence are likely to be different from early childhood as a result of cognitive and emotional development. That is to say, adolescence has been considered as a crucial period in which teenagers undergo several changes in their physical appearance, social interactions and cognitive advances (Ainsworth, 1989; Cooper et al., 2013). These important developments during adolescence might change the nature and focus of their interactions with their parents, leading to a fluctuation in the parent-child attachment relationship (Ainsworth, 1989; Cooper et al., 2013). For example, adolescents may have a broader social life (e.g., the role of peers appears in their social network). Their friendships with peers may grow in importance and depth, and more emotional challenges are likely to be created (Allen & Miga, 2010). Although one's well-functioning emotional regulation capacities can develop effectively within the context of securely parental attachment relationship during childhood, these adolescents' experiences of emotional regulation difficulties with peers are still likely to provoke changes in their attachment quality with their parents to some degree (even parenting practices and family experiences during adolescence maintain the same as their childhood). This is because parents may be less capable in their parenting tasks (e.g. facilitating peer

relationships, guiding problem-solving or setting limits) during their offspring's later developmental stage (e.g. adolescence) (Shiller, 2017).

Furthermore, the transition from childhood to adolescence might naturally provoke one's experiences of more cognitive and emotional developments. For instance, adolescents might experience increased autonomy, shared decision-making with parents and improved perspective-taking skills. These cognitive developmental changes may enable adolescents to have more conflicts with their parents and critically evaluate their relationships with them, and this is likely to provoke their 'fluctuations' in attachment patterns (Allen, McElhaney, Kuperminc, & Jodl, 2004; Choudhury, Blakemore, & Charman, 2006, Hill, Bromell, Tyson, & Flint, 2007). Furthermore, as children move into adolescence, they become more likely to seek independence and seek to individuate from their parents (Hay & Ashman, 2003). This developmental milestone might help adolescents to relate to their parents whilst being less emotionally dependent on them (Buist et al., 2002; Hay & Ashman, 2003). In other words, although adolescents might still depend on their parents for emotional regulation on occasions when they get stressed, they more prefer to regulate negative emotion independently or develop alternative solutions (e.g. using internal cognitive strategies or seeking their peers' emotional support). If parents did not like the individuation process and were afraid of it - maybe some parents would seek to pull their children back into a sense of closeness with them because they are afraid of the child's independence and maybe some would just let the child go. Adolescents' striving for emotional self-reliance/sufficiency and autonomy, as well as the parents' behavioural changes in response to their offspring's developmental advances, might potentially cause changes or fluctuations in the attachment dynamics (Allen & Miga, 2010).

Such a view tends to be favoured in contemporary research and is sensible to explain both the fluctuation of attachment throughout the lifespan and the inconsistent research in relation to continuity of attachment characteristics (Mikulincer & Shaver, 2016; Fraley, 2002). According to Fraley's (2002) meta-analysis of attachment stability from infancy to adulthood, there is a moderate level of association (.39) between attachment orientations across different developmental stages (especially up to 19 years old). This result seems to be in line with other research (e.g., Owens et al., 1995; Fraley & Shaver, 1999; Shaver, Belsky, & Brennan, 2000) that has found around a moderate correlation between early attachment security with parents and attachment in later adult relationships, suggesting that prototypical attachment styles do not completely set the tone for attachment through the lifespan.

2.2.1 Multiple working models in relational networks

With age, the expansion and extension of social and relational life can (but is not always) be conducive to the formation of a wider variety of attachment bonds with multiple figures (such as grandparents, older siblings, neighbours, relatives, close friends, teachers/coaches, coworkers, romantic partners, and spouses) as subsidiaries for closeness and sources of security (Sukys, Lisinskiene, & Tilindiene, 2015; Carr, 2012; Seibert & Kerns, 2009; Furman & Buhrmester, 1985; Weiss, 1974). These "attachment figures" tend to be relationship referents who serve some or all of the functions of proximity maintenance, safe haven and secure base provision. However, in adolescence, compared to other relational figures, parents remain important, chronic, and influential figures in the attachment hierarchy (Hazan & Zeifman, 1994; Fraley & Davis, 1997; Mayseless, 2004; Zhang, Chan, & Teng, 2011).

Previous studies have suggested that the role of "principal" attachment figure can change according to developmental level. For example, parents are the most likely primary attachment figures until late childhood, whereas close friends and romantic partners can become the preferred and prevailing attachment figures for many adolescents and adults (Fraley & Davis, 1997; Hazan & Zeifman, 1999; Howes & Spieker, 2008; van IJzendoorn & Sago-Schwartz, 2008). This does not necessarily mean that parents no longer serve as attachment figures per se, simply that individuals' attachment hierarchies expand and develop, often meaning that different roles and attachment functions (i.e., proximity, safe-haven, and secure-base functions) are served by different attachment figures (Fraley & Davis, 1997; Allen, 2008; Hazan & Zeifman, 1994; Trinke & Barrholomew, 1997; Schachner, Shaver, & Gillath, 2008). Furthermore, research (e.g., Overall, Fletcher, & Friesen, 2003; Lewis, 1994; Pierce & Lydon, 2001; Trinke & Bartholomew, 1997) has suggested that individuals' attachment-related needs may vary dramatically between relationships or relational domains (e.g., familial, friendship, romantic).

La Guardia et al. (2000) explored within-person variation in attachment security across a range of relationship referents (e.g., mother, father, romantic partner, best friend). Through a self-determination theory lens, they contended that the satisfaction of basic psychological needs for relatedness, autonomy, and competence in a given relationship would determine the extent to which that relationship would reflect a secure attachment bond. If such patterns of need satisfaction varied between relationships (and within-person), then it was hypothesized that there would be variability in felt attachment security between relationships. Results indicated that variability of need satisfaction in different relationships

at the within-person level accounted for approximately twice as much variance in attachment variables than between-person variability. Hence, people seem to have different attachment security and models of attachment for the different attachment figures in their networks, and the greater the satisfaction of specific psychological needs in a given relationship then the greater the felt attachment security within that relationship. Such research strongly suggests that attachment security varies across the network of close relationships that individuals develop.

Research into the fluctuation and stability of people's attachment security seems to be in line with Bowlby's initial proposition: the formation of attachment characteristics seems to involve interactions with multiple attachment figures, which are assimilated into and help to amend experiences (or mental representations) with parents during early developmental stages and which may have some enduring influence across the lifespan but still be open to change. Attachment experiences with new relational partners are likely to serve as crucial antecedents for change in relation to a person's attachment security and may help to form a widening pool of mental representations within specific close relationships.

2.2.2 How does attachment to multiple figures work?

The issue of how relationship-specific, domain-specific, and global attachment representations work together in a hierarchy of working models within a relational network has been explored by many researchers (e.g., Collins & Read, 1994; Fraley & Davis, 1997; Trink & Bartholomew, 1997; Pierce & Lydon, 2001; Overall et al., 2003; Imamoglu & Imamoglu, 2006). Collins and Read (1994) argued that it is likely that people can hold distinct attachment representations for specific relationship referents in their live (e.g., mother, father, romantic partner) but that these attachment representations are likely to be hierarchical in terms of their fundamental importance and impact on global wellbeing and personality development. That is, perhaps certain relationships carry more weight in relation to the influence they have on people's general attachment-related cognition, affect, and behavior. This may be a function of factors such as the literal amount of time spent with a given other (e.g., children are likely to spend a lot of time with parents, or sports coaches if they are athletes) or degree of psychological investment in a relationship. It may also be that at different phases of the lifespan different relationship-specific representations of attachment are more likely to be in flux or open to influence. Collins and Read (1994) argued that by early adulthood most people's attachment representations of their parents have been entrenched and reflect well organized sets of expectations and beliefs that are firmly

established. In contrast, perhaps relationships with romantic partners are, at this stage, less entrenched and therefore likely to be malleable and more "state-like" in the way that they are experienced.

Pierce and Lydon (2001) found that individuals with insecure (but not secure) attachment at the global level exhibited variability (in the quality and intimacy of social interactions) across different relationship-specific working models, suggesting that globally insecure individuals were still able to "find" security in some specific relationships, despite their global insecurity. Imamoglu and Imamoglu (2006) also revealed that individuals reporting higher attachment security at the global level did not necessarily experience the same perceptions of attachment security across specific close relationships, again suggesting that individuals are able to form relationship-specific attachment representations that deviate from their crystallized global models.

Overall et al. (2003) have suggested that people's attachment representations in relationship "domains" (e.g., family, friends, romantic relationship domains) seem to be abstract reflections of the interactions between their "global" and "relationship-specific" working models. They conceptualized that relationship-specific life events (e.g., divorces, break-ups, or affairs) would be likely to have a much greater and direct impact on the attachment representations pertaining to the specific "domain" in which they occurred and a lesser effect on other relational domains (i.e., security in romantic relationships would be affected by divorce or affairs but friendships would not). Building on previous findings (e.g., Fraley & Davis, 1997; Trink & Bartholomew, 1997; Pierce & Lydon, 2001), Overall et al.'s (2003) data indicated a "multilevel" network of attachment representations, in which global, overarching attachment schema (at the uppermost level) serve to orchestrate and shape generally low cognitively-accessible or ambiguous information across relational domains and integrates the most consistent experiences. Whereas, at the midlevel tier, nested underneath global representations, are "domain-specific" models (like familial, friendship, or romantic relationships), providing more accurate differentiation of attachment-related beliefs and expectations across domains. Nested underneath these "domain-specific" models, it is proposed that relationship-specific attachment representations with multiple, specific figures (e.g., one's mother, father, brother, close friend, and specific romantic partners) may exist. The data indicate, as one might expect, that attachment to multiple figures is likely to be complex and intricate in terms of how it is experienced and orchestrated.

2.3 The idea of hierarchical attachment representations "within" specific relationships: Global, contextual, and situational levels

Existing literature has devoted significant attention to exploring the relationship between multiple attachment representations across global, domain-specific, and relationship-specific hierarchies. However, less conceptual attention has been devoted to variation in attachment patterns "within" a single attachment relationship. Gillath, Karantzas and Fraley (2016) proposed a revised hierarchical structure to add an additional level of specificity that would be nested underneath the "relationship-specific" attachment models described above. Specifically, they claimed that a person's attachment representations might vary from moment to moment, although individual interpersonal "moments" or interactions that happen within a specific relationship and somehow share common associations would rise to relationship-specific models. Hence, we believe that even within specific relationships, a multilevel structure might be proposed that includes a generalized model of the given relationship, a model of the given relationship as it is experienced across different contexts, and a state-like fluctuation that functions episodically (see Figure 1).

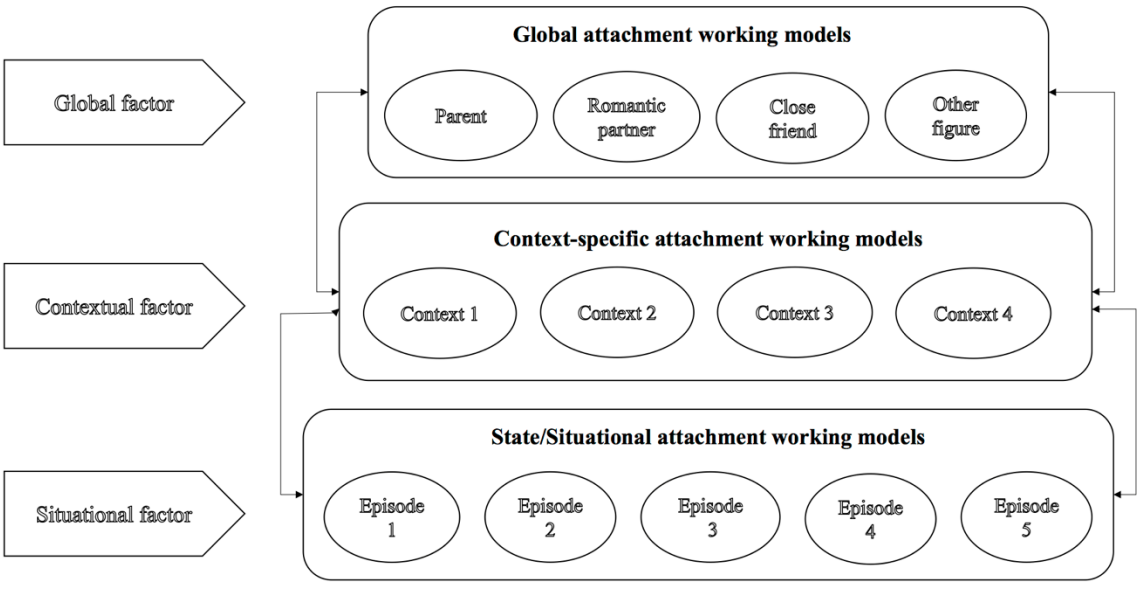

Figure 1 A schematic depiction of hierarchical structure of attachment representations within specific relationships

Based upon Gillath et al.'s research, transient attachment-relevant interactions or "moments" within a specific relationship, and at a given time, can form "episodic" representations at the lowest level of a relationship-specific hierarchy. Episodic factors may temporarily shape attachment representations (e.g., beliefs, goals, behavioural strategies) with a given relationship partner, thereby giving rise to episodic attachment representations. For

example, being cheated on by a partner may cause a loss of trust for that partner, thereby momentarily enhancing attachment insecurity within the given relationship. At the next level, we suggest that it may be important to consider "contextual" representations within a given relationship too, which might be referred to as a series of repeated momentary episodes that cluster around a given context and seem to relate to meaningful contextual variability within a given relationship. Girme and colleagues (2018) have recently identified that within-person variation in attachment security is possible over time and that such variation impacts psychological wellbeing because it contributes to a lack of consistency. This can be particularly challenging for securely attached individuals who "expect" consistency from partners (Girme et al., 2018). Following these findings, we argue that it may also worth considering variation in relation to contextual representations of attachment in a given relationship. Contextual variation might be referred to as a cluster of repeated momentary episodes in a given context that create meaningful "contextual variability" within a specific relationship. For instance, within a given child-parent relationship there may be particular parenting behaviours that are more prominent in a given context (e.g., sport or academics) that trigger or shape individuals' attachment representations with the parent in that specific domain but *not* in other contexts where interactions with the same parent occur. Furthermore, individuals' orientations at a specific level within a given relationship may be shaped by the lower/higher order level (i.e., a top-down and/or bottom-up effect) as postulated in previous hierarchical models (see Collins & Read, 1994; Collins & Allard, 2001; Overall et al., 2003; Gillath et al., 2016; Vallerand, 1997, 2007).

2.4 Contextual "child-parent" attachment representations: Conceptualization and significance

We believe that within a given relationship, individuals could develop "context-specific" attachment schema in relation to a specific relationship partner. Context-specific schema could then act as mediators to connect the global and episodic levels of specificity by means of top-down and bottom-up operations. Research has indicated that throughout the lifespan individuals are capable of developing various context-specific (e.g., school-specific, sport-specific, community-specific) attachment bonds with a variety of relationship partners, including parents, close friends, teammates, teachers, coaches, and romantic partners (e.g., Sukys, Lisinskiene, & Tilindiene, 2015; Furman, 1989; Furman & Buhrmester, 1985; Carr, 2009, 2012). This is often because these significant others are more accessible, attainable, and able to satisfy specific attachment functions (e.g., proximity, safe haven, and secure base)

in a given context and at a given developmental stage (e.g., Allen, 2008; Hazan & Zeifman, 1994; Schachner et al., 2008).

Context-specific representations of attachment might be referred to as schema in which one's attachment representations with (for example) parents specifically vary by context (e.g., sport or academics) and are stored and experienced as such in a psychological and emotional sense. As mentioned earlier, these contextual schemata could also involve interplay between contextual factors, global structures (i.e., more prototypical schemas for parents) and episodic (i.e., episodic interactions from moment to moment) representations. In other words, through extracting attachment-relevant information related to a given context, a person's context-specific representations with parents could reflect a variety of cognitively accurate and accessible knowledge relating to that context and which is distinct from other contexts.

2.4.1 Why should child-parent attachment representations vary across contexts?

What kinds of contexts might have the capacity to shape and sculpt a contextual-level child-parent attachment representation that differs from that representation in other contexts? To some extent the answer to this question depends heavily upon the individual difference, family, and cultural factors. It has also been suggested that various significant others (e.g., parents, coaches, teachers, colleagues) and their involvement with individuals in specific contexts (e.g., school, sport, work) may vary by developmental level and gender (e.g., Weigand, Carr, Petherick, & Taylor, 2001; Eccles et al., 1983; Cox & Whaley, 2010; Dietrich, Viljaranta, Moeller, & Kracke, 2017; Simone, 2015). However, one might crudely sketch out plausible "contexts" or "domains" that meaningfully connect to children's lives. For example, many Western children's lives revolve around contexts, such as education/academics and/or extracurricular activities (e.g. sport, art, or music) (Jamber, 1999; Greendorfer & Lewko, 1978; Sage, 1980, Carr & Weigand, 2014) and previous research has showed a great deal of interest in the mechanisms behind parental influence on one's wellbeing in specific contexts (e.g. academics and sport) (Fredricks & Eccles, 2004; Eccles, Wigfield, & Schiefele, 1998; Tofler, Knapp, & Lardon, 2005; Assor, Roth, & Deci, 2004; Weigand et al., 2001).

In the specific contexts of academics and sport research (e.g., Ames, 1992; Brophy, 1987) has strongly suggested that parental belief systems in relation to a child's ability and their subject evaluations of children's successes and failures serve as influential "contextual cues" that shape children's beliefs, affective patterns, and behavioural responses in a given

context. Environmental characteristics (e.g., highly public, competitive arenas, evaluation/reward systems, interpersonal complexity) emphasized in contexts, such as education/academics or sport, are likely to induce parental focus on specific goals (e.g., improvement of skills or exams, compete with others) and expectations (e.g., academic success, winning of games) for their children and this has been showed to influence psychological outcomes (e.g., enjoyment, cognitive anxiety, needs satisfaction) (Weiss, Amorose, & Wilko, 2009; Hall & Kerr, 1997; White & Zellner, 1996). The specific attributions of these contexts is probably why a parent who is generally neglectful in parenting may change her/his behaviour to be supportive and nurturing (or controlling and inconsistent) when it comes to interacting with children in regard to the issues of sport and academics (e.g., talk about reports/exams, discuss or judge performance/ranking/scores of competitions).

For example, several studies have documented that Asian parents' aspirations (or expectations) strongly related to their children's high aspirations and excellence in academic achievement (e.g., Yeh, 2003; Chao, 2000; Chen & Stevenson, 1995; Mau, 1997; Fuligni, 1997; Kao, 1995). Research (e.g., Phillipson & Phillipson, 2007; Chen & Ho, 2012) in exploring the relationship between parental involvement and Taiwanese students' belief and achievement in academics has further indicated that Asian (e.g., Taiwanese) parental beliefs and expectations in children's education were largely influenced by the Confucian belief that promoted the value of being well-educated in order to attain higher social status in the future. Therefore, parents might not only set high standards for children's academic performance, but also invest considerable time, effort, and resource (e.g., supervise their schoolwork, provide appropriate home atmosphere for studying, pay for cram schools or tutors, restrict their after-school activities, control their off-school time) in their children's education in order to ensure their academic success (e.g., Braxton, 1999; Chao, 1996; Kim, 2002). Parents' emphasizing the importance of being successful in academics is likely to result in children placing much more weight on their interactions with parents in regard to academic issues (e.g., more cares about being recognized and appreciated by their parents) than sport issues (e.g., Braxton, 1999; Chao, 1996; Kim, 2002). Thus, it is possible that these context-induced parenting beliefs and behaviours towards children's academic lives might potentially change their attachment working models with parents. In short, there are reasons to believe that specific contexts have the capacity to fundamentally alter the quality of child-parent interactions to the extent that they may constitute dramatic shifts in the nature of the child-parent attachment relationship.

Nevertheless, how long it might take a given parent to alter their parenting practices across different contexts in order to genuinely change in child-parent attachment relationship is unlikely to predict with any certainty. It may depend - upon parental factors, upon child factors, upon familial and contextual factors - and would be highly variable. We thought it may relate, very loosely, to the question of how long it takes people to "change" in any psychological sense. For example, in the context of psychological therapy research (e.g., Lowry & Ross, 1997; Miller, 1996) seeking to gauge the professional opinion of therapeutic practitioners about the ideal length of interventions (in order to make a genuine difference in clients' quality of life and functioning) has suggested that (a) it depends significantly on the psychological diagnosis being treated, and (b) that for trauma-related symptoms, therapists would recommend an optimal number of sessions that is significantly higher than the 8-10 sessions typically attended by most clients (Lowry & Ross, 1997). Miller's (1996) review suggested that treatment durations that are more fluid and are agreed between practitioners and clients yield more positive outcomes than shorter interventions that are predetermined by policy or other fixed parameters. Therefore, it is impossible to make strict generalizations about the required length of a given therapeutic intervention in order to effect change. Similar to the context of psychological therapy, we do not think that it is possible to put a number on how long it would take a parent to alter parenting behaviours across the contexts of sport and academics in order to influence shifts in the child-parent attachment patterns.

In the sporting literature, for example, parents who create a performance-oriented motivational climate, in which recognition, praise, evaluation, and value are attached to children's demonstration of ability and superiority, are more likely to resort to controlling practices in their interactions with children. Children exposed to this motivational atmosphere have been shown to experience thwarted needs for autonomy, competence, relatedness, and associated negative emotions (e.g., anxiety, stress, pressure), especially when they are not able to meet parental requirements (Carr & Weigand, 2014). These performance-approach oriented motivational, cognitive, and affective cues could activate and foster sport-specific contextual child-parent attachment representations. However, these sport-specific attachment representations need not necessarily be salient with the same parent in other contexts where secure attachment interactions may be found. This may be an example of how unique contextual cues might trigger context-specific attachment schema within child-parent relationships.

Research in other performance contexts have identified that some types of parental involvement in performance contexts can invade, interrupt, and be incompatible with

fundamental aspects of a caring bond. For example, Rapport and Meleen (1998) examined child-parent bonds in a sample of adults who had shown early talent in the field of screen acting and had been considered "child celebrities" between the ages of 6 months to 18 years. Of interest in this study was the nature of the self-reported child-parent relationship in child celebrities whose parents had also served as their child's manager. Data suggested that former child performers whose parents (it was almost exclusively mothers who had fulfilled this role in the investigated sample) had served as their professional manager viewed the parental figure as less caring and more controlling than did performers whose caregivers were not their managers. The researchers argued that their data hint that the inherent *role* of managing a child celebrity may conflict with many of the fundamental aspects of caregiving typically associated with the child-parent relationship. For example, "managing" a child performer may require parents to adopt a more emotionally distant and objective perception of the child (e.g., in the managerial role perhaps the child is viewed as a "source of income" or as "the means to an end") that is incompatible with features of a caring and secure parental bond. Some of these conflicts related to parental roles have also been identified in parent-coach/child-athlete dyads in the context of sport (e.g., Weiss & Fretwell, 2005). Hence, there is reason to believe that certain contexts have the capacity to encourage and foster specific representations of attachment in child-parent bonds that may or may not be carried over into other contexts.

The concepts of parental conditional regard (PCR) and achievement by proxy distortion (ABPD) have also been considered as maladaptive parenting practices, especially in the context of sport and academics (Tofler & Butterbaugh, 2005a; Tofler, Knapp, & Lardon, 2005b; Baldwin, 1994; Deci & Ryan, 1995; Harter, 1993; Assor, Roth, Deci, 2004). These achievement domains seem to be potential platforms for the demonstration of PCR and ABPD as context-specific socializing practices. Specifically, "parental conditional positive regard (PCPR)" is thought to exist when parents are perceived to offer more affection, recognition and attention than usual when the child meets their expectations and desired aims. In contrast, "parental conditional negative regard (PCNR)" is when parents are perceived to withhold or give less affection, love and esteem than they usual do when the child does not meet their expectations. PCPR/PCNR have been identified as disruptive parenting practices linked to significant psychological costs (e.g., introjected regulation, unstable self-esteem, negative emotions, poor relationships and well-being) (Assor, Roth, Deci, 2004; Assor & Tal, 2012, Assor, Kanat-Maymon, & Roth, 2014). It may be that, as Assor et al. (2014) claimed, children introject parental desired behaviours and goals to

prevent the loss of parental appreciation or increase the attention and love they receive from parents. However, their desires or pressures to avoid feeling unworthy or to obtain self-regard from parents may also result in a dampened sense of autonomy (Assor, Vansteenkiste, & Kaplan, 2009). In other words, employing this parenting practice of PCR in response to children's emotional needs regarding academic or sporting problems encountered is likely to trigger their specific insecure working models in that parental care and support is inconsistent and contingent within these two contexts.

To date, no research (if any) has explored the associations between PCR and parental attachment in particular domains (e.g., sport, academics), however, a few studies have investigated the influence of PCR on adolescents' relational, emotional, and academic costs. For instance, Assor et al. (2009) conducted two cross-sectional studies comparing PCPR, PCNR, and autonomy support in the domains of emotion control and academics through a self-determination lens of internalization. Their findings revealed that perceived PCNR could contribute to adolescents' feelings of resentment towards parents, which in turn resulted in their perceptions of dysregulation of negative emotions (i.e., fear and anxiety) and academic disengagement. Plus, perceived PCPR might lead to their feelings of internal compulsion (e.g. perform behaviours that were instrumental for obtaining conditional regards), which in turn caused perceptions of suppressive regulation of negative emotions (i.e., fear and anxiety) and grade-focused academic engagement. Apart from that, Assor at al.'s (2004) study investigating how PCR affected a series of adult children's wellbeing and behavioural enactment (i.e., fluctuations in self-esteem, guilt and shame after failure to enact behaviours, short-lived satisfaction following success, perceived parental disapproval, and resentment towards parents) through a mediating role of introjected internalization (i.e., internal compulsion) across four domains (i.e., emotion control, prosocial behaviour, sport and academic achievement). Similar results were also found in their study indicating that domain-specific PCR could have significantly positive influences on one's sport/academic-specific behavioral enactment, fluctuations in self-esteem, perceived parental disapproval, and resentment of parents through perceived context-specific internal compulsion. These results (e.g., Assor et al., 2004; Assor et al., 2009) hinted that PCPR/PCNR could have considerable effects on shaping insecure child-parent interactions, problematic emotional regulations, and psychological malfunctioning particularly within the contexts of sport and academics - which is seemingly in line with the relevant representations of insecure attachment. Given the fact of that PCR has been considered as a "domain-specific" socializing strategy for bolstering contingent introjection (Assor, 2011; Assor et al., 2014; Ryan, Deci, & Grolnick, 1995), it is

plausible that context-specific PCR might serve as a contextual cue that elicits predominantly insecure child-parent attachment schema in a given context.

"ABPD" may be another mechanism by which parents execute "context-specific" maladaptive socializing practices in children's achievement domains (e.g., sport, education, entertainment, music) (e.g., Tofler & Butterbaugh, 2005a; Tofler et al., 2005b). As an example, sport can be a competitive and reward/evaluation-focused context in which the demonstration of ability is important and emphasized by significant others. The unique characteristic and atmosphere of sport is an open door to aggressive and ambitious parents, vulnerable to ABPD pressures, especially when parents place their self-worth on a child's success and failure in sport. Objectification of a child is one of the mechanisms of parental "achievement by proxy" in Tofler et al.'s proposed ABPD spectrum. That is, parents may come to regard their children as an object, rather than a person, as a means to indirectly satisfy their own needs for achievement due to parental lack of ability to distinguish their own needs for success from children's needs. This controlling parental behaviour may drive a child to succeed in specific achievement fields to please parents or feel valued. However, it may also lead children to feel guilt or lose self-value if they cannot meet parents' expectations. Tofler et al.'s proposed ABPD (e.g., objectification) is seemingly a fairly new concept of maladaptive parenting that none of existing empirical research has explored the associations between ABPD and parental attachment in general or particular domains. However, similar to the outcomes of employing context-specific PCR, it can be seen that children constantly suffering from parental objectification are also likely to induce their insecure attachment-related feelings, beliefs, and responses towards parents' requirements, which then leads to their emotional disturbance and need frustration. That is, this introjection of parental objectification, thwarting one's psychological needs for autonomy, competence and relatedness within sport and academics, could serve as an influential contextual cue to activate insecurely "sport/academic-specific" attachment representations.

2.4.2 Why might "contextual" attachment within child-parent attachment relationships matter?

Context-specific attachment representations may offer an interesting way of exploring whether and how children are able to separate out, filter, or process parental attachment behavior, differentiating across various context-specific working models. We do not know, at present, whether children do this, whether it is helpful, how it operates, and what the consequences might be. Also, according to our earlier conceptualization of a multilevel

model (see figure 1), a person' contextual attachment working models would presumably share variance with global, episodic, and even other context-specific models and the nature of this variation remains to be unraveled. Contextual attachment representations may be promising ways to expand our understanding of child-parent relationships in specific contexts and in general.

Theoretically, context-specific variation in attachment patterns offer interesting possibilities for exploring other aspects of attachment. Girme et al.'s recent (2018) study indicated that individuals with greater fluctuation (variation in attachment security) within relationship-specific figures showed decreased levels of relationship satisfaction and increased levels of relationship distress over time, especially for "securely" attached individuals who "expected" greater stability within a specific relationship. It seems that future studies could transfer this idea to within-relationship fluctuation by context, exploring whether fluctuation of child-parent attachment security across contexts has a similar detrimental effect on children's wellbeing. For example, compared to secure or "organized-insecure" attachment (i.e., anxious/ambivalent, avoidant) models, children with "disorganized/disoriented" attachment patterns have trouble gauging whether proximity-seeking and emotional support is a viable or unviable option on any level (Main & Solomon, 1990). Such children are likely to suffer from a breakdown of organized attachment strategies (e.g., primary, hyper-activation, deactivation) because of disorganized, unusual fluctuation between anxiety and avoidance (e.g., Hesse, 2008; Hesse & Main, 2008; Lyons-Ruth & Jacobvitz, 2008). It may be that some children experience greater variation in attachment security and caregiving behaviour from parents across contexts and are consequently more likely to develop globally disorganized attachment representations. Understanding how variation in context-specific attachment representations within specific parental relationships contributes to inhibiting organized attachment models (and disrupts wellbeing due to contextual variation) would be an interesting development. In this case, it would facilitate new ways of examining how context-specific levels of attachment might impact higher-order global levels. That is, perhaps context-specific variation within a parent makes it harder for individuals to crystalize established generalizations about the given attachment figure. This would suggest that contextual fluctuation is an inhibitory factor in higher-order generalizations of attachment. Investigation of such new hypotheses would be permitted by exploring the idea of contextual attachment variation.

2.5 Attachment styles and psychological-related outcomes

Attachment processes characterised as a form of emotion regulation describe how individuals learn to deal with negative emotions and fragility through their interactions with primary caregivers, in order to achieve their attachment goals (i.e. attainment, or deactivation of the needs, being cared for and protected) (Mikulincer & Shaver, 2016). Theoretically, the proficiency of a person's 'emotion regulation', learnt from the parent-child interactions in early developmental stages, can be an important indicator of one's future mental health issues. For example, an anxiously attached child is likely to develop a dangerous, hopeless and unpredictable working model as a result of an attachment figure's inconsistent and unreliable responses. This type of insecure child may doubt their worth and ability to be loved by a selected caregiver in time of need. The unfulfilled needs of 'felt-security' may also lead to their intensified negative emotions (e.g. anger and crying) or implicitly accented vulnerability and neediness (e.g. anxiety and fear) as a 'down-regulation' strategy for their goal pursuit (i.e. gaining a protector's attention). They are not only at a disadvantage for learning to use well-adapted approaches to regulate 'negative emotion' from maladaptive parenting, but also use this as a strategy to capture attachment security. A down-regulation strategy may be helpful for increasing the likelihood of capturing a caregiver's attention and protection. However, suffering from chronic emotional dysfunction, a child's constantly unmanageable cognition and feelings of anger, fear and anxiety can be transformed into serious mental problems (e.g. depression or anxiety disorders).

Compared to insecure-anxious children, avoidant individuals are normally nurtured in a neglected, unresponsive and emotionally distant parenting environment. Their painful interaction experiences with cold and rejective parents encourage the development of deactivation (defensive inhibition) strategy, preventing themselves from feeling negative emotions (e.g. fear, anxiety, anger, sadness and distress) during stressful or difficult moments. This is because engaging with negative emotions may lead to activation of their primary attachment system (i.e. proximity-seeking behaviours), bringing about further disappointment. Unlike securely attached children, who use well-adaptive emotional regulation strategy (e.g. communication, compromise, relationship maintenance), avoidant children prefer to take a self-reliant approach (e.g. block negative emotions, switch off any emotion-related attentions, inhibit expressions of emotions) to minimise the risks of suffering from emotional disturbance. However, keeping interpersonal distance and suppressing negative emotion can leave unresolved distress behind, and disable one's ability to handle the unexpected adversities of life (e.g. long-term and highly stressful situations). The stress

experienced by insecure individuals attempting to maintain emotional defence systems can translate into considerable psychological disorders.

Bowlby's proposed concept and key tenets of attachment theory (1969/1982, 1973, 1980, 1982) especially emphasised the importance of a person's ability with regard to emotion regulation and how these 'learned abilities' during one's early attachment experiences render one's later psychological well/ill-being. Mikulincer and Shaver's (2016) review of previous attachment-based psychopathological studies also suggested that insecure attachment characteristics have been substantially associated with internalised mental problems (e.g. anxiety disorders, depression, post-traumatic stress disorder) and externalised behavioural issues (e.g. suicide tendencies, eating disorders, substance abuse, criminal behaviours, personality disorders, and dissociative disorders). Recent research (e.g., Newland, Chen, & Coyl-Shepherd, 2013; Ullrich-French, Smith, & Cox, 2011; Carr, 2009; Felton & Jowett, 2013a, 2013b, 2017) exploring child-parent attachment and wellbeing-related outcomes has brought attachment theory research into the domain of specific "contexts" (especially achievement domains — like education/academics and sport) in children's lives. In the next section we further narrowed our literature review to the contexts of sport and academics. To be in line with the aim of this thesis, the relevant research with regard to attachment and one's well/ill-being in sport and academics/education discussed in the following sections are limited to the context of *child-parent* relationship. Although we have noticed that previous research has had some explorations of athlete-coach, student-teacher, and peer attachment relationships within these two contexts, they are not our main foci in this project.

2.5.1 Research in parental attachment surrounding the context of sport/physical activity

The contexts, like academics and sport, have been considered as two major achievement domains for many Western children's lives (Jamber, 1999; Greendorfer & Lewko, 1978; Sage, 1980, Carr & Weigand, 2014). The specificity of these two contexts have brought several attachment-related scholars to look into parental influence on children's *context-specific* wellbeing (e.g., physical and performance self-concept, psychological need satisfaction and motivation in PA, health behaviours) (e.g., Newland et al., 2013; Sukys, Lisinskiene, & Tilindience, 2015; Ullrich-French et al., 2011).

In the context of sport and physical activity (PA), for example, Ullrich-French et al. (2011) considered active engagement in PA is beneficial to one's physical and psychological

wellbeing (e.g., fitness, physical health, emotional adjustment). And reliable and consistent social connections (e.g., autonomous supports from significant others) were an approach to facilitate positive motivations in health behaviours. They conducted a cross-sectional study with 1110 (60% female) college/undergraduate students, average aged 20.7 years, from a US university to explore the associations between attachment theory and students' perceived health behaviours through a lens of self-determined motivation for PA. The Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987) was employed to assess adult participants' self-report attachment relationships with parents (including mother and father, respectively). The Psychological Need Satisfaction in Excise Scale (PNSE; Wilson, Rogers, Rodger, & Wild, 2006) and Exercise Motivation Scale (EMS; Li, 1999) were modified to evaluate their perceptions of three need satisfaction (i.e., competence, autonomy, and relatedness) and eight motivational regulations (e.g., intrinsic motivation, identified regulation, introjected regulation, external regulation and amotivation) for PA. The results indicated that undergraduates' attachment security with parents were positively related to their intrinsic motivation for PA and actual level of PA engagement. Besides, the results of hypothesized mediation model also illustrated that both of parental attachment security positively associated with young participants' perceived need satisfaction. Specifically, father attachment was found to support the perceptions of three psychological need satisfaction mediating the correlation with self-determined motivation, mother attachment only associated with the perceptions of autonomy. Their findings suggested college-age students' attachment relationships with *fathers* seemed to have more salient influences on their perceptions of PA-specific psychological need satisfaction and motivations than their attachment with *mothers*.

Nevertheless, recent research has had inconsistent conclusions (e.g., Li, Bunke, & Psouni, 2016; Lisinskiene & Juskeliene, 2019). For instance, Li et al. (2016) examined the associations between parental attachment quality (i.e., mother and father), physical self-worth (i.e., sport competence, physical conditioning, body attractiveness, and physical strength), and PA engagement. The Chinese-version IPPA-R (Zhang et al., 2011) and physical self-perception profile (PSPP; Xu & Yao, 2001) measures were administrated to a sample of 783 Chinese adolescents (average aged 12.92 years, 49% male). Their findings indicated that compared to male participants, *female* adolescents had greater impact on the mediating role of physical self-perception (especially perceived physical conditioning) between *mother* attachment and PA engagement. However, *father* attachment had stronger and direct effect on *male* adolescents' PA involvement. Similarly, Lisinskiene and Juskeliene (2019) conducted a cross-sectional study investigating the links between parental attachment (i.e.,

mother and father) and adolescents' engagement in PA. A sample of 835 adolescents (average aged 16 years, 43% male) were recruited from six mainstream schools in Lithuania, US. The IPPA-R for children (including three dimensions – trust, communication, and alienation) (Gullone & Robinson, 2005) and International Physical Activity Questionnaire for Adolescents (IPAQ-A; Kowalski, Crocker, & Donen) were used to assess young participants' self-report relationships with each of parents in relation to their PA involvement. Their study also found that parental attachment had significant (but weak) correlations with adolescents' PA (especially younger *male* adolescents with *father* positively related to their PA engagement). This is again showing that children and young people's attachment with *the* parent who has the same sex with them (e.g., girls' attachment to mother, boys' attachment to father) could have separate and unique influences on children's PA engagement, especially *boy-father* attachment model is more powerful than *girl-mother* model.

Apart from non-achievement field of PA, a series of studies (e.g., Felton & Jowett, 2013a, 2013b, 2017; Carr, 2009; Carr & Fitzpatrick, 2011) conducted within the context of competitive sport have also found the significant associations between athletes' attachment relationships and their *sport-specific* and *global* wellness indices (e.g., psychological need satisfaction, subjective vitality, self-esteem, physical self-concept, positive and negative affect). For example, Felton and Jowett (2013a) investigated how athletes' attachment patterns influence on their perceptions of basic need satisfaction through a series of mediators (i.e., social environmental factors) within specific relational domains (i.e., athlete-parent and athlete-coach relationships). Several self-report measures were administrated to a sample of 215 athletes (average aged 20.56 years, 41% male) from UK's sport teams. Specifically, the Experiences in Close Relationship Scale – Short version (ECR-S; Wei, Russell, Mallinckrodt, & Vogel, 2007) and Need Satisfaction Scale (NSS; La Guardia et al., 2000) were employed to evaluate athletes' self-report general experiences in close relationships and perceptions of psychological need satisfaction with parents. Moreover, the modified Sport Climate Questionnaire (SCQ), Sport-Specific Quality of Relationship Inventory (S-SQRI, Jowett, 2008), and modified Coaches' Controlling Behaviour Scale (CCBS; Bartholomew, Ntoumains, & Thogersen-Ntoumani, 2010) were utilized to assess the mediators (i.e., athletes' perceptions of social support, interpersonal conflict, autonomy and controlling behaviours). The results demonstrated that those social factors investigated in their study could mediate the relationships between athletes' perceived attachment insecurity and need satisfaction within the parental relational context.

Moreover, based on the conceptual links between attachment theory and self-determination theory (SDT), Felton and Jowett (2013b) further investigated whether psychological need satisfaction could mediate the association between athletes' attachment styles and their wellbeing indices within specific relational contexts. A sample of 430 British athletes (average aged 20.4 years, 39% male) were recruited from a range of individual (59%) and team (41%) sports and invited to complete multi-section self-report measures. ECR-S (Wei et al., 2007) was also used to assess athletes' general experiences in close relationships and NSS (La Guardia et al., 2000) was utilized to evaluate athletes' perceived satisfaction of basic psychological need with parents. Plus, most of wellbeing indices were assessed in a *general* sense, such as Subjective Vitality Scale (SVS; Ryan & Frederick, 1997), Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965), and the International Positive and Negative Affect Schedule – Short Form (I-PANAS-SF, Thompson, 2007) were administrated to evaluate young participants' perceptions of, mental and physical aliveness and energy, how they regard themselves, positive and negative affect experiences. Only the Elite Athlete self-Description Questionnaire (EASDQ; Marsh, Hey, Johnson, & Perry, 1997) was employed to evaluate perceived physical self-concept (i.e., skill ability, body shape, physiological state, mental competence, and overall performance). The results of Bootstrap mediation analyses indicated that young athletes' experiences of need satisfaction with parents could act as a mediating role between the associations of perceived attachment relationships and global and contextual psychological outcomes within the parental relational context.

Based on previous relevant studies conducted using a cross-sectional approach, Felton and Jowett (2017) extended Reinboth and Duda's (2006) study to further explore how the associations between athletes' attachment patterns, psychological need satisfaction, and wellbeing indices at the within-person (i.e., the change in one's scores across the time points) and between-person differences (i.e., the different scores across the time points compared to others) within specific relational domains by employing an approach of longitudinal design. Their study sought to investigate (1) the predictions of within-person changes and between-person differences in attachment on athletes' perceptions of basic need satisfaction and several contextual and global psychological outcomes, (2) the predictions of within-person changes and between-person differences in psychological need satisfaction on athletes' wellbeing indices (i.e., vitality, self-esteem, negative affect, and performance self-concept). In light of previous studies (e.g., Asendorpf & Wilpers, 2000; Fraley, 2002; Rholes et al., 2001) demonstrating that individuals' fluctuations in attachment security is likely to predict

changes in relational factors at 6-month intervals, Felton and Jowett (2017) administrated several measures in a sample of 110 British athletes (average aged 20.96 years, 32% male) from a range of individual and team sports at three points (each separated by 3 moths). The ECR-S (Wei et al., 2007) and NSS (La Guardia et al., 2000) were also employed to assess athletes' attachment experiences within close relationships in a global sense and the perceptions of psychological need satisfaction with parents. Wellbeing outcomes were evaluated by several questionnaires in contextual and global levels, such as SVS (Bostic, Rubio, & Hood, 2000), RSE (Rosenberg, 1965), and I-PANAS-SF (Thompson, 2007) were used to assess athletes' perceptions of mental and physical alertness and energy, self-esteem, experience of negative affect in a *global* sense. EASDQ (Marsh et al., 1997) were utilized to evaluate athletes' perceptions of their sport performance in a contextual level. Overall, within the parental relational context, the results of multilevel modelling revealed that both of anxious and avoidant attachment styles could significantly predict athletes' wellbeing outcomes at the within-person and between-person levels. Yet, only avoidant attachment patterns could have significant prediction on athletes' experiences of need satisfaction with parents at both levels. Moreover, perceived need satisfaction with parents could also account for athletes' various wellbeing indices at the between-person level, but only predict their perceived *vitality* at the within-person level.

Apart from abovementioned research, a few studies (e.g., Carr, 2009; Carr & Fitzpatrick, 2011) have investigated the associations between parental attachment relationships and friendships in the context of sport. For example, Carr (2009) conducted a cross-sectional study to investigate the links between adolescent-parent attachment relationship and youth athletes' experiences of sport friendship. Adolescent Attachment Questionnaire (AAQ; West et al., 1998) and Sport Friendship Quality Scale (SFQS; Weiss & Smith, 1999) were employed to a sample of 96 *male* athletes, average aged 13.92 years, being involved in their respective sport team for at least one year in UK. Adolescent athletes were asked to self-reported attachment styles with *an assigned parent* (either mother or father) and experiences of relationship quality with a *nominated* best friend in their sports. The results of multiple regression analyses demonstrated that youths perceiving higher parental attachment security experienced more positive sporting friendships than perceiving lower security ones, especially when both of friends (youths and one nominated friend) reporting more security with their assigned parent experienced more positively than less securely attached ones or one friend was less securely attached. Carr's (2009) preliminary investigation has initially provided evidence from an *intrapersonal* perspective. Nevertheless, Carr and Fitzpatrick

(2011) considered that youths' experiences of relationship quality with a best friend might be also affected by the attachment characteristic of *that* friend. Therefore, they further investigated how parental attachment styles in relation to youths' experienced sporting friendship in the context of Actor-Partner Interdependence Model (APIM), using both of *intrapersonal* and *interpersonal* perspectives. A sample of 193 male athletes (average 14.08 years) from UK's sports teams was instructed to complete AAQ (West et al., 1998) and SFQS (Weiss & Smith, 1999). The results of multilevel modelling suggested that experienced relationship quality with best friends could be as a function of youth athletes' *own* attachment patterns (*actor*) and their friends' attachment characteristics (*partner*).

2.5.2 Research in parental attachment surrounding the context of academics/education

An array of research (e.g., Newland et al., 2013; Newland, Coyl, & Chen, 2010; Carr, Colthurst, Coyle, & Elliott, 2013; Maltais, Duchesne, Ratelle, & Feng, 2015; Wright et al., 2014) also revealed the significant associations between parental attachment and children/adolescents' wellness and academic-related outcomes in the context of academics/education. For instance, Maltais et al. (2015) conducted a longitudinal study to explore the mediating role of academic competence and anxiety symptom on the influences of children's attachment with *mother* on their achievement goal orientations. A sample of 627 children (average aged 11.83 years, 46% boys) from a public French-speaking school in Quebec, Canada. Participants were invited to complete the relevant questionnaires in each of Grade 6 and Grade 7. Pupils (in Grade 6) were completed the Attachment Security Scale (ASS; Kerns, Klepac, & Cole, 1996) to assess their attachment security with *mother* and the Mastery Goal, Performance-Approach and Performance-Avoidance Goal Orientation scales of the Patterns of Adaptive Learning Scales (PALS; Midgley et al., 2000) were used to evaluate their achievement goal orientations (AGO) in the context of school (in Grade 6 and Grade 7). Furthermore, the academic subscale of the Perceived Competence in Life Domains (PCLD; Losier, Vallerand, & Blais, 1993) and the French version of the Revised Children's Manifest Anxiety Scale (Turgeon & Chartrand, 2003) were employed to measure pupils' perceptions of academic competence and anxiety symptom. As the preliminary results showed that there were significant differences in several outcome variables between male and female children, their analysis further tested gender invariance in hypothesized mediation models. The main results indicated that there were no significant differences (i.e., girl's and boy's model) between two mediating effects in the associations of attachment security and AGO. That is, schoolchildren perceiving greater attachment security with mother had higher

competent perceptions in academics, which in turn more likely adopted mastery goal orientation in school. Moreover, perceiving more attachment insecurity with mother experienced higher anxiety symptom, which in turn more likely adopted performance goals.

Besides, a number of studies (e.g., Newland et al., 2013; Newland et al., 2010), concerning that the explorations of how children's attachment to *father* in relation to their emotional and cognitive outcomes were still very scant and unclear, have particularly focused on investigating *father* attachment and children's academic-specific and global outcomes. For example, Newland et al. (2010, 2013) explored the influences of several contextual predictors with regard to fathering (e.g., education-related beliefs, perceptions, and involvement, father-teacher relationship, fathers' stress, social support) and child-father attachment on children's school-related and global psychological indices (e.g., perceived school problems, social-emotional outcomes, global self-concept, academic self-concept and achievement) in US and Taiwan. Totally, a sample of 274 child-father dyads (pupils average aged 9.17 years, 51% male) recruited from primary schools in US (64%) and Taiwan (36%) was instructed to complete various questionnaires. The expanded version of the Children's Relationship Attitudes (CRA, Roggman, Coyl, Newland, & Cook, 2001) was employed to assess children's perceptions of attachment relationship with *fathers*. The second edition of Behavioural Assessment System for Children (BASC-2; Reynolds & Kamphaus, 2004) was used to evaluate children's global social-emotion outcomes (e.g., atypicality, locus of control, social stress, depression, self-esteem, self-reliance) (in Newland et al., 2010) and school problems (in Newland et al., 2013). Plus, children's global and academic self-concept were evaluated by the Piers-Harris Children's Self-concept Scale (Piers-Harris 2; Piers, Harris, & Herzberg, 2002). Overall speaking, their findings indicated that child-father attachment relationship could significantly predict children's positive and negative school outcomes, global and academic-specific social-emotion indices.

Apart from studies exploring how *child-mother* and *child-father* attachment respectively in relation to children's academic-specific and global psychological outcomes, some researchers (e.g., Carr et al., 2013; Wright et al., 2014) focused on examining the influences of individuals' general attachment style on their self-efficacy and psychological wellbeing in the context of education. For instance, Wright et al.'s (2014) study integrating attachment theory with social cognitive career theory to investigate whether the prediction of one's attachment styles on academic and career self-efficacy could be mediated by perceived support and career barriers. A sample of 486 undergraduates (average aged 19.17 years, 40% male) recruited from a university in US was instructed to complete several questionnaires.

The Experiences in Close Relationships-Revised scale (ECR-R; Fraley, Waller, & Brennan, 2000) was used to assess students' experienced relationships with others in a general sense. The Loneliness Scale – Version 3 (UCLA – 3; Russell, 1996) and Social Support Questionnaire – Short Form (SSQ-SF; Sarason, Sarason, Shearin, & Pierce, 1987), and Perception of Barriers – Modified Version (POB-MV; Luzzo & McWhirter, 2001) were employed to evaluate young participants' perceived satisfaction of social support and career barriers. Furthermore, the Career Decision Self-Efficacy Scale – Short Form (CDSE-SF; Betz & Taylor, 2001), and Academic Self-Efficacy Scale (ASES; Schmitt, 2008) as well as College Self-Efficacy Instrument (CSEI; Solberg et al., 1993) were utilized to evaluate participants' perceived career choice competencies and academic self-efficacy in college. The results of mediation modelling illustrated that students experiencing more general attachment security perceived higher satisfactions of social supports and lower career barriers which in turn had higher self-efficacy in both contexts of academics and career.

One of the major limitations in Wright et al.'s (2014) study was to measure attachment at a *global* level and the other outcome variables at the *domain-specific* level. They suggested that future studies should examine research variables (predictors and outcome variables) at the *same* level of specificity in order to obtain more informative and accurate findings. This issue was similar to Carr et al.'s (2013) study examining the influences of students' general attachment characteristics on an array of psychosocial and mental health indices in the context of university in a sample of 131 first-year undergraduates (average aged 19.33 years, 56% male) recruited from three universities in UK. A longitudinal research design was employed to collect data in two time points. Participants were initially invited to complete self-report attachment measure (i.e., Vulnerable Attachment Style Questionnaire, VASQ; Bifulco et al., 2003) to assess how they feel about themselves in relation to others *in general* in the beginning of their first semester. Subsequently, several wellbeing and mental health assessments (i.e., Perceived loneliness, institutional integration, way of coping, depressive symptoms, Basic psychological need satisfaction) were completed during the final three weeks of the first semester. The Revised UCLA Loneliness (Hughes et al., 2004) and Institutional Integration Scale (Pascarella & Terenzini, 1980) were utilized to evaluate students' subjective perceptions of loneliness and satisfaction of social integration with faculty and peers *during their first semester at university*. Furthermore, students' psychological strategies in coping with difficulties and perceptions of contextual need satisfaction *during the first semester of university* were evaluated using the Revised Ways of Coping Questionnaire (Folkman & Lazarus, 1985) and adapted Basic Needs Scale (Baard,

Deci, & Ryan, 2004). And Beck Depression Inventory-II (BDI-II; Beck et al., 1996) was used to evaluate participants' current (in the last three weeks) self-reported depressive symptoms. Their results of multiple regression analyses demonstrated that undergraduates reporting higher score in the insecurity dimension of the VASQ experienced more loneliness and depressive symptoms, as well as less institutional integration and psychological need satisfaction.

2.5.3 Strengths and limitations in parental attachment literature

Collectively, the aforementioned literature reviews have demonstrated some of the strengths and limitations of attachment research in the contexts of sport/PA and academics. For example, the issue of gender differences has been considered in explorations of parental attachment related to children's wellbeing and PA outcomes. Specifically, most of the findings (e.g. Ullrich-French et al., 2011; Li, Bunke, & Psouni, 2016; Lisinskiene & Juskeliene, 2019) have revealed that both paternal and maternal attachment were important factors in the results of well/ill-being indices among both boys and girls in the context of PA. This is probably because the mother and father have different expectations of, and parenting behaviours related to, their male and female children's PA engagement. Moreover, these parenting differences might affect the boys' and girls' attachment-related perceptions (e.g. how they judge the importance of PA engagement and the specific needs of the mother and father in their PA in an attachment sense), and that could have unique implications for male and female children's wellness in the context of PA. This is seemingly in line with Collins and Read's (1994) claim that individuals could develop separate and independent models of attachment with each of the parents. Which model (maternal or paternal attachment) might actually guide one's attachment-related perceptions and behaviours might depend on which model better applies to the specific situation encountered (i.e. the strength of the model, whether it matches the features of the situation, and its specificity). In the context of PA, it is likely that boys' attachment schemata with fathers, and girls' attachment schemata with mothers are more accessible, applicable and influential in the prediction of children's wellbeing and PA-specific outcomes.

Nevertheless, this issue has not been paid much attention in relevant research in the context of competitive sport and academics/education (e.g. Felton & Jowett, 2013a; 2013b; 2017; Carr et al., 2013; Wright et al., 2014). That is to say, to date, only a few studies in sport have considered Collins and Read's (1994) suggestions on evaluating athletes' attachment patterns by asking young participants' general feelings about one self-nominated parent (e.g.

Carr et al., 2013; Wright et al., 2014) or one research-assigned parent (i.e. mother or father) (e.g. Maltais et al., 2015; Newland et al., 2013; Newland et al., 2010). The majority of research investigating the associations between attachment styles and sport/academic-specific psychosocial outcomes was still used to measure children's and youth athletes' attachment styles by asking about their general experiences in close relationships (e.g. a series of studies by Felton and Jowett, 2013a; 2013b; 2017). We thought this could be an important limitation as the previously measured general attachment characteristics within close relationships might be unable to fully and accurately reflect one's context-specific attachment representations with parents, and that might challenge the validity of previous findings. Thus, in this project perceived parental contextual attachment will be assessed using the child's self-reported relationship with a self-nominated parent in the specific contexts of sport and academics.

Besides, some attachment-related studies examining the relationships between youths' global attachment patterns with parent and context-specific outcome variable in a specific context (e.g. PA, sport, academics) (e.g. Ullrich-French et al., 2011; Li et al., 2016; Lisinskiene & Juskeliene, 2019; Maltais et al., 2015; Newland et al., 2010; 2013; Wright et al., 2014; Carr et al., 2013) measured their major research variables in a *global* sense within child/athlete-parent relationships but not specific to the context of interest. According to our aforementioned conceptualization of contextual parental attachment, we argued that *pan-domain global* constructs might be unable to truly reflect sport/academic-specific representations. That is to say, similar to previous studies (e.g. Collins & Read, 1994; Fraley & Davis, 1997; Pierce & Lydon, 2001; Overall et al., 2003) suggesting that individuals are likely to develop relationship-specific (e.g., parent, friend, romantic partner) working models that deviate from their crystallized global models, it is likely that children could also form context-specific representations that are inconsistent with their global schemata *within* a particular child-parent attachment. Furthermore, the majority of scholars has tended to think about child-parent attachment patterns on a global level and used global patterns of attachment to predict sport/academic-specific psychological outcomes (e.g. Ullrich-French et al., 2011; Li et al., 2016; Lisinskiene & Juskeliene, 2019; Felton & Jowett, 2013a, 2013b, 2017). We thought examining specific causal hypotheses within the particular contexts on the different level of specificity (i.e., parental attachment on global level and children's outcome variables on contextual level) seems not thorough and sensible to understand the extent to which children-related outcomes can be explained by "context-specific" parental attachment, and these contextual attachment working models are supposed to have more direct and

predominant influences than global schemata. Hence, this thesis sought to improve previous limitations, aiming to use a perspective of "contextual parental attachment" to explore the influences of *sport/academic-specific* attachment patterns *within* a given child-parent relationship on the relevant *context-specific* outcomes.

2.6 Conceptual links between parental attachment and well/ill-being: Self-determination theory

In the previous section the relevant literature was discussed in terms of the associations between parental attachment relationships and children/athletes' psychosocial and achievement outcomes in the contexts of sport/PA and academics/education. In the following sections, grounded on the conceptual connections between attachment theory and self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2002), the concept of basic psychological need satisfaction and frustration (BPNSF) is especially introduced to discuss how it relates to parental attachment and children/athletes' well/ill-being across the contexts of sport and academics. The concept of BPNSF and its associations with one's positive and negative psychological outcomes will be addressed, followed by a synthetical review integrating three major research issues (i.e., contextual attachment, BPNSF, and well/ill-being outcomes) concerned within this thesis.

2.6.1 The applications of BPNSF in the fields of sport and academics/education

Basic psychological need theory (BPNT), known as one of six mini-theories of SDT (Deci & Ryan, 2000; Ryan & Deci, 2000), derived from the assumption of SDT's organismic-dialectical meta-theory which posits that human beings' innated tendency to pursuit thriving, and satisfaction of inner psychological needs is essential for healthy functioning across various individuals and culture. Specifically, human wellbeing, growth, and integrity requires specific nutrients in the form of fulfillment of psychological needs for autonomy, competence, and relatedness to energize the integration process and then contribute to health and psychological wellbeing. Basically, the need for *autonomy* refers to the experiences of volition and psychological freedom when engaging in an activity (Ryan & Deci, 2006). The need for *competence* concerns about the experiences of being confident and effective in dealing with one's environment and achieving desired outcomes (White, 1959). Plus, the need for *relatedness* involves the feeling of being connected with and loved or cared for by significant others (Baumeister & Leary, 1995; Deci & Ryan, 1985). A great deal of studies in the contexts of *sport/PA/exercise* (e.g., Sylvester et al., 2018; Gunnell et al., 2013;

Mack et al., 2012; Adie, Duda, & Ntoumanis, 2008; Gagne, Ryan, & Bargmann, 2003; Reinboth, Duda, & Ntoumanis, 2004) and *academics/school* (e.g., Ratelle, larose, Guay, & Senecal, 2005; Milyavskaya & Koestner, 2011) have evidenced the associations between psychological need satisfaction and various wellness outcomes. Specifically, sporting and academic-field researchers have found that experienced sport/academic-specific basic need satisfaction significantly related to an array of global (e.g., positive and negative affect, self-esteem, subjective vitality) and contextual (e.g., domain subject vitality, motivation for gymnastics, persistence in a science programme, attendance of practices, exercise behaviour) wellbeing indices.

Theoretically (BPNT; Deci & Ryan, 2000), experiencing low level of need satisfaction might be unlikely to facilitate individuals' growth and wellness and then contribute to malfunctioning over time, however, experiencing need thwarting (which is one's perceptions of psychological needs being actively undermined) in a specific context could intensively evoke ill-being as a result (Ryan, Deci, Grolnick, La Guardia, 2006; Vansteenkiste & Ryan, 2013). Recent research (e.g. Ryan & Deci, 2000; Bartholomew, Ntoumanis, Ryan, Thogersen-Ntoumani, 2011, Gunnell et al., 2013) has differentiated the concept of need frustration from need satisfaction in that unfulfilled needs might not relate to malfunctioning as frustrated needs. In other words, individuals' experiences of insufficient fulfillment of the needs do not equal to their experiences of need frustration as perceived low need satisfaction does not necessarily include need-thwarting experiences. Instead, perceived frustration is normally considered as an active process of damage or obstruction (therefore do include the experiences of unfulfilled need satisfaction). Compared to the concept of three types of need satisfaction, *competence thwarting* occurs when an environment brings about one's feelings of incapable or being demeaned of ability, *autonomy thwarting* appears when being in a controlling environment, and *relatedness thwarting* happens when an environment makes people feel cold and being neglected (Vanteenkiste, Nemiec, & Soenens, 2010).

Despite need satisfaction and need frustration/thwarting have been clearly differentiated and conceptualized, existing measures of need satisfaction used to assess positive affects might be not suitable to predict negative outcomes as the lack of need satisfaction does not equate with the presence of need thwarting (e.g., see relevant studies in sport and PA, Adie et., 2012; Mack et al., 2012). Bartholomew et al. (2011) claimed that the experiences of need satisfaction and thwarting might have concurrent impacts on, and unique contributions to, one's negative outcomes in a given context. In their study Psychological Need Thwarting Scale (PNTS) was initially developed, designed to tap one's feelings of

active frustration particular to competence, autonomy, and relatedness. Since then, several studies conducted using PNTS (especially in the fields of sport and academics) have found that *context-specific need frustration/thwarting* significantly contributed to one's contextual (e.g. low satisfaction of sport performance, burnout, perfectionistic concerns) and global ill-being (e.g., low life satisfaction, depression symptom, negative affect, emotional and physical exhaustion, disordered eating) outcomes (e.g., Bartholomew et al., 2011; Bartholomew, Natoumanis, Ryan, Bosch, et al., 2011; Belaguer et al., 2012; Mallison & Hill, 2011; Stebbings et al., 2012).

Besides, some researchers (e.g. Ryan & Deci, 2000; Vansteenkiste & Ryan, 2013, Bartholomew et al., 2011) further suggested that basic psychological *need satisfaction* and *need frustration* should be considered as a single underlying principle so that could help understanding individuals' both optimal (i.e., their healthy tendency to wellness and integrity) and non-optimal (i.e., their vulnerability to ill-being and malfunctioning) mechanisms. Scant research (e.g. Chen et al., 2015; Bartholomew et al., 2011; Gunnell et al., 2013) has explored the concurrent effects of bright (i.e., need satisfaction) and dark (i.e., need frustration) side of individuals' functioning on their well/ill-being indices. For instance, in the domain of general life, Chen et al. (2015) conducted two cross-sectional studies examining whether a person's optimal and non-optimal functioning could have distinguishable and unique associations with one's well-being and ill-being, respectively, across four cultures (i.e. Belgium, China, USA, Peru). Part of their findings (in study 2) showing that perceived psychological need satisfaction could primarily predict well-being indices, whereas experienced need frustration could have predominant contribution to ill-being (and minor association with well-being outcomes) across diverse cultures and individual need strength. In other words, individuals perceiving higher level of need satisfaction related to their greater life satisfaction ($r = .51$) and subjective vitality ($r = .73$), but not *depressive symptom*. The experiences of need frustration positively related to depression ($r = .60$) and negatively (but weaker) related to life satisfaction ($r = -.19$). Their findings also revealed that there was a significantly negative correlation ($r = -.84$) between psychological need satisfaction and need frustration in their hypothesized model. Furthermore, people's perceptions of need satisfaction and need frustration were not found to have cultural differences in association with their well/ill-being outcomes. Overall, Chen et al.'s (2015) study successfully provided additional evidence consistent with the conceptualization of BPNT and previous relevant research (e.g. Ryan & Deci, 2000; Vansteenkiste & Ryan, 2013, Bartholomew et al., 2011).

Similar to Chen et al.'s (2015) investigation, Gunnell et al.'s (2015) study, considering the important relationships between need thwarting and ill-being previously found in the domains of sport and exercise (e.g. Bartholomew et al., 2011, Belaguer et al., 2012; Stebbings et al., 2012), examined if psychological need thwarting could also have unique impacts on well/ill-being beyond the contribution of need satisfaction was considered in the context of PA. A longitudinal design was employed to explore how adult participants' need satisfaction and need thwarting in relation to their positive and negative psychological outcomes (particularly, need thwarting could have additional prediction beyond need satisfaction on ill-being indices). The results of a series of hierarchical regression analyses demonstrated that individuals' changes in PA-specific need satisfaction could have significantly positive influences on their PA-specific positive affect and subjective vitality, and negative prediction on PA-specific negative affect. Notably, people's changes in PA-specific need thwarting could only have significantly positive influences on their PA-specific negative affect (but not well-being indices) after the contribution of need satisfaction was considered. That also means that a person's experiences of need thwarting could be differentiated from the experiences of need satisfaction in association to one's well/ill-being outcomes. This is, again, another support in the conceptualization of BPNT (Deci & Ryan, 2000) (especially in the field of PA) illustrating people's optimal and non-optimal functioning seems likely to co-occur (in a given context) and, over time, foster or undermine psychological-related outcomes through unique and distinguishable pathways.

Moreover, Bartholomew et al.'s (2011) study conducting the similar investigation in the context of sport also provided informative evidence. Specifically, their study was to examine (1) whether need thwarting could have additional predictive power on well/ill-being indices beyond need satisfaction could account for, (2) if need thwarting would have much stronger prediction than need satisfaction on ill-being indices and need satisfaction would predict more variance than need thwarting on well-being indices, (3) whether optimal and non-optimal functioning could display significantly interactive effects on psychological outcomes so that the co-occurrence of need satisfaction and need thwarting could be evidenced in the context of sport. The results of hierarchical regression analyses and the subsequent structural equation modeling (SEM) demonstrated that individuals' experiences of need thwarting had considerable influences on their perceived exhaustion in sport and subjective vitality in general over and above their experiences of need satisfaction did. Plus, perceived need satisfaction was the stronger predictor of vitality and experienced need thwarting predominantly predicted exhaustion. Notably, several significant interactive effects

revealed that the predictions of perceived levels of need thwarting on exhaustion and vitality could be moderated by experienced need satisfaction (the details regarding which specific psychological needs of thwarting and satisfaction had interactive effects on outcome variables refer to the results section of their study). Collectively, in this section a series of studies conducted within diverse contexts aforementioned have delivered a prevailing message. That is, it is important to take both of need satisfaction and need frustration/thwarting into consideration when investigating how people's basic psychological needs in relation to their contextual and global well/ill-being indices as they might have concurrent mechanisms in this causal hypothesis. In the next section, we further integrate the concept and relevant literature of contextual attachment into the discussions of BPNS/F and psychological outcomes.

2.6.2 Contextual parental attachment, need satisfaction and frustration, and well/ill-being: A cross-pathway approach

Abovementioned literature has provided fruitful and consistent evidence in the associations between attachment, BPNS/F, and psychological outcomes. For example, the relationships between (1) attachment and well/ill-being (e.g. Felton & Jowett, 2017; Li et al., 2016; Newland et al., 2013), (2) attachment and BPNS (or BPNF) (e.g. Carr et al., 2013; Ullrich-French et al., 2011; Felton & Jowett, 2013a, 2013b), and (3) BPNS/F and well/ill-being (e.g. Bartholomew et al., 2011; Gunnell et al., 2013; Milyavskaya & Koestner, 2011) have been substantially explored and discussed across various fields (e.g., academics, university education, school, PA, sport, general life, close relationships). Nevertheless, a few research (e.g. Chen et al., 2015; Bartholomew et al., 2011; Gunnell et al., 2013) has further suggested that within a given context individuals' perceived levels of need satisfaction and need thwarting/frustration might have concurrent and differentiate influences on their well-being and ill-being indices. For example, in the context of sport (e.g. Bartholomew et al., 2011) experienced need thwarting is likely to *buffer* (negatively affect) the relationships between higher level of need satisfaction and well-being outcomes. Nevertheless, very rare research (e.g. Vansteenkiste & Ryan, 2013; Bartholomew, Natoumanis, Ryan, Bosch, et al., 2011; Behzadnia et al., 2018; Haerens et al., 2015) has further explored how experienced psychological need satisfaction and need frustration concurrently work on one's optimal and non-optimal functioning.

Vansteenkiste and Ryan's (2013) study proposing SDT-based model on the role of need satisfaction and need frustration (Deci & Ryan, 2000) provided a framework addressing

the mechanism of how social environments (e.g. socializing agents) contribute to one's wellness and malfunctioning through both *dark* and *bright* side of psychological needs. Stated simply, their hypothesized model (refer to Figure 2) illustrates that being nurtured in a need-supportive context (e.g., caregivers' responsive and timely care) could be conducive to the fulfillment of psychological needs and that benefits one's wellness and resilience. However, experienced contextual need thwarting (e.g. caregivers' controlling, critical, rejecting behaviours) is likely to actively undermine psychological needs (which is fairly different from simple low fulfillment of need satisfaction) and that evokes illness as well as increased vulnerabilities for psychopathology. Besides, they also argued that individuals' experiences in need-supportive and need-thwarting contexts might be likely to have interactive effects on their optimal and non-optimal functioning as their integrated model depicting several possible cross pathways in Figure 2. Specifically, in the bright side, people's experiences of contextual need support (as a source of mental nourishment) could buffer the detrimental effects (from a need-thwarting context) on perceived need frustration to their wellness and malfunctioning. That is to say, individuals being nurtured in which specific context that their psychological needs could be properly supported and fulfilled might be able to degrade their deteriorating experiences from the context of need thwarting, which in turn slows down ill-being symptom and/(or) the damage of wellness. In the dark side, experienced maladaptive treatment in which particular context that needs could be actively dampened might contribute to one's lower fulfillment of psychological needs from a need-supportive context, which in turn forestalls optimal functioning and/(or) against severe malfunctioning.

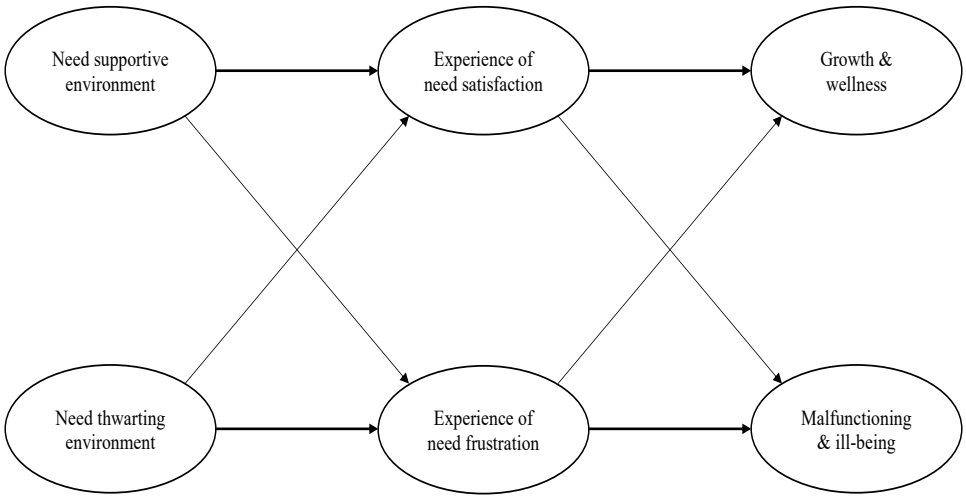

Figure **2.** Retrieved from Vansteenkiste and Ryan's (2013) graphic overview of the self-determination theory view on the role of need satisfaction and need frustration

Although Vansteenkiste and Ryan's (2013) hypothesized model was initially proposed in a parenting context, a series of research (e.g., Behzadnia et al., 2018; Haerens et al., 2015) investigated in the domain of education (i.e., physical education) also provide informative evidence. Specifically, Haerens et al. (2015) conducted a cross-sectional study with a sample of 499 secondary school students (average aged 15.77 years, 44% male) examining the mediating effects of students' experienced need satisfaction and need frustration in associations between their perceptions of teaching styles (i.e., autonomous-supportive and controlling styles) and motivational outcomes (i.e., autonomous, controlled, amotivation) and oppositional defiance in physical education (PE). Their results displayed supportive and consistent evidence with previous theoretical hypotheses (bright and dark pathways) and relevant findings (e.g., Vansteenkiste & Ryan, 2013; Bartholomew et al., 2011). That is to say, Haerens et al.'s (2015) study was able to distinguish between pathways encompassing youth students' perceived autonomous-supportive and controlling teaching behaviours and experienced PE-specific need satisfaction and frustration as two individual mediators in associations between different teaching styles and PE-specific motivational outcomes. Furthermore, the results of their hypothesized interactive effects between bright and dark pathways also evidenced that perceived autonomous teaching practices could be an effective buffer against students' experiences of need frustration and maladaptive motivational outcomes (but not oppositional defiance). Similarly, perceived controlling teaching behaviours could forestall autonomous motivation through experienced low fulfillment of psychological needs. These cross pathways were, indeed, found to be less pronounced than the primary symmetrical paths (e.g., perceived controlling teaching affected need frustration which in turn contributed to maladaptive motivational outcomes). Apart from Haerens et al.'s hypothesized pathways, other significant cross paths presented in their graphical findings (refer to Figure 1, Haerens et al., 2015) also provided additional evidence on how social-environmental factors contribute to individuals' optimal and non-optimal functioning through distinct, unique, and interactive pathways.

Another similar study in the context of PE, Behzadnia et al. (2018) examined whether students' perceived teaching styles (autonomous support or controlling) contribute to a series of their general and PE-specific outcomes via the mediating roles of experienced need satisfaction and need frustration as well as autonomous and controlled motivation. A sample of 140 college-level students (average aged 21.69, 33% male) were administrated to various surveys (e.g., perceived teaching styles, PE-specific need satisfaction and frustration, PE-specific motivations, PE-specific positive and negative affect, intentions of future persistence

in PA). The results of their path analyses in symmetrical (bright and dark sides) and asymmetrical (interactive effects) pathways were very complex and informative showing 12 significant pathways in their hypothesized model. Overall speaking, college students' experiences of need satisfaction and need frustration could have concurrent and distinct impacts on mediating the associations between teaching styles and motivations as well as psychological outcomes in the context of PE. Experiencing teachers' autonomous support primarily contributed to higher level of need satisfaction, which in turn boosted autonomous motivation and then brought about greater performance, knowledge, intention, and positive affect. Similarly, experienced controlling teaching behaviours predominantly contributed to perceived higher need frustration, which in turn resulted in students' negative affect. Plus, several significant cross pathways illustrated that perceived teachers' autonomous support might degrade positive affect and score on knowledge as well as negative affect via students' experiences of lower need frustration. Perceived controlling teaching might also diminish students' positive affect and score on knowledge through their experiences of lower need frustration.

Apart from research in PE, in the context of sport, Bartholomew, Natoumanis, Ryan, Bosch, et al. (2011) extending Bartholomew et al.'s (2011) design conducted a series of studies (two cross-sectional and one longitudinal designs) investigating the mechanisms of how youth athletes' perceptions of coaching styles (i.e., coaches' autonomy-supportive and controlling behaviours) influence psychological functioning and well/ill-being outcomes through their experienced sport-specific need satisfaction and need frustration. Similar to the abovementioned studies (e.g., Behzadnis et al., 2018; Haerens et al., 2015; Vansteenkiste & Ryan, 2013), their study also assumed that athletes' optimal and non-optimal functioning could concurrently contribute to their wellness and illness via distinguishable and unique pathways. Specifically, Bartholomew, Natoumanis, Ryan, Bosch, et al.'s (2011) study 2 replicating their study 1's design tested the same hypothesized model with the same predictors (i.e., perceived coaching styles), but the outcomes variables (such as vitality, depression, disordered eating examined in study 1) were replaced with positive and negative affect as well as burnout. Overall results in their two cross-sectional studies revealed that experienced need satisfaction significantly mediated the relationships between perceived coaches' autonomy support and athletes' feelings of global vitality and positive affect, whereas perceived need thwarting played an important mediating role in association between controlling coaching and global negative affect and depression, as well as sport-specific disordered eating and burnout. Moreover, the significantly asymmetrical effects (weaker than

symmetrical paths) could only be found in pathways from athletes' perceptions of autonomous coaching to negative affect, burnout, disordered eating through their experienced need satisfaction and need thwarting.

2.6.3 Justification for the proposed research

Taken together, despite previous literature (e.g., Bartholomew et al., 2011; Behzadnia et al., 2018; Haerens et al., 2015) has provided some evidence in the mechanisms of how individuals' optimal and non-optimal functioning concurrently influence on their well/ill-being, especially within the fields of sport and education (especially PE). We thought more broader and novel explorations are still needed. Specifically, past research has displayed those significant interactive effects found in the hypothesized cross paths within *sport* were different from studies within *education.* For example, in the context of PE (e.g., Behzadnis et al., 2018; Haerens et al., 2015), students instructed by an autonomy-supportive teaching style were conducive to experienced fulfillment of need satisfaction, and this incremental inner nutrition was beneficial for diminishment of need-frustrating experiences (from controlling teaching behaviours) and their subsequent illness. Similarly, being instructed by controlling teachers might cause students' experiences of need being actively blemished, which in turn diminished the level of need satisfaction as well as one's wellness. Yet, these concurrent influences across individuals' optimal and non-optimal functioning might not be the case in the context of competitive sport (e.g., Bartholomew, Natoumanis, Ryan, Bosch, et al., 2011). That is to say, being trained by an autonomy-supportive coaching style seemed able to repair, to a certain degree, athletes' feeling of need thwarting and subsequent malfunctioning. However, being trained by controlling coaches was unlikely to harm athletes' optimal functioning and wellness (nurtured from supportive coaching practices). Integrating abovementioned studies (very scant though) investigated in the contexts of teaching in PE and coaching in sport, it is interesting to note that in some contexts (especially competitive sport) the accumulation of inner resource obtained from coaches' created supportive environment seemed not only conducive to the recovery of need-frustrating feelings and illness, but also protect one's optimal functioning not being vulnerated by maladaptive coaching practices.

Apart from sporting and PE contexts, past research examined Vansteenkiste and Ryan's (2013) hypothesized model neither within other achievement fields (e.g., academics) nor cross contexts. In other words, the majority of previous studies has only tested their model in a single field (e.g., PE, sport) within specific relational contexts (e.g., teaching,

coaching), yet explored this model across different contexts, such as schoolchildren's major achievement domains (i.e., sport, academics) within a parenting context. This is an important issue missing in past literature which we seriously concerned in this current project. We seek to apply our proposed concept of contextual parental attachment to examine Vansteenkiste and Ryan's (2013) model. Specifically, previous researchers (e.g., Davila & Cobb, 2003; Davila & Sargent, 2003) have suggested that attachment schema, like any other beliefs or attitudes, are prone to changes in accordance with current emotional (e.g., mood) or environmental factors (e.g., social circumstances, contextual factors). We argue that the three basic psychological needs (autonomy, competence, and relatedness) in a particular context could be supported by context-specific parenting practices that reflect a secure attachment pattern involving parental warmth, caring responsiveness, encouragement of initiative and exploration, as well as parental unconditional regard. However, concurrently, one's psychological needs in another context (but with the same parent) could also be frustrated or deprived by context-specific insecure parenting behaviours which is controlling, inconsistent, neglectful, and rejecting.

In our study two exploring the associations between context-specific parental attachment and contextual and global psychological outcomes has evidenced that children could have different attachment representations across the contexts of sport and academics within a particular child-parent relationship. Our study also revealed that contextual parental attachment could have predominant influences on context-specific psychological need satisfaction and frustration, although *academic-specific* attachment could also, to some extent, affect *sport-specific* need satisfaction and have more impacts on children's global well/ill-being than *sport-specific* attachment. These findings suggested that contextual attachment across the contexts of sport and academics might have interactive effects on children's contextual need satisfaction and frustration as well as global psychological outcomes. Furthermore, several studies have displayed context-specific need satisfaction (e.g., Sylvester et al., 2018; Gunnell et al., 2014; Mack et al., 2011; Adie et al., 2008; Reinboth et al., 2004; Ratelle et al., 2005) and need frustration (e.g., Bartholomew et al., 2011; Belaguer et al., 2012; Mallison & Hill, 2011; Stebbings et al., 2012) could significantly predict both of sport/academics-specific and global well/ill-being. In this thesis we are more interested in exploring the mechanisms of how contextual parental attachment concurrently influences children's optimal and non-optimal functioning in the both levels of contextual (i.e., need satisfaction/frustration) and global (i.e., depressive symptom, self-concept) outcomes. Because we thought it would be helpful for understanding how contextual

predictors (i.e., variations in attachment across the contexts and the relevant context-specific need satisfaction and frustration) contribute to one's subsequent (global) psychological outcomes (i.e., depression and self-concept) over time.

In this project we argue that it is important to consider the individual contribution of different context-specific attachment schemata within a given relationship because they may each have relatively unique and distinguishable links to adaptive and maladaptive psychological outcomes. To doing so, we aim to test two hypothesized models: (1) That youths' perceptions of sport-specific attachment security with a given parent could positively influence their self-concept through sport-specific need satisfaction (a "bright" pathway), and that perceived academic-specific attachment insecurity with the same parent could positively relate to depressive symptoms through the experiences of academic-specific need frustration (a "dark" pathway). Additionally, cross pathways were also tested to explore whether (a) sport-specific security with a given parent could also affect self-concept by buffering the negative impact of academic-specific need frustration (i.e., perhaps sport-specific parenting behavior "spills over" into other contexts and moderates need satisfaction/frustration in these contexts), and (b) academic-specific insecurity with a given parent could also affect depression by impacting sport-specific need satisfaction, (2) That youths' perceptions of academic-specific attachment security with a given parent could positively influence their self-concept through academic-specific need satisfaction (a "bright" pathway), and that perceived sport-specific attachment insecurity with the same parent could positively relate to depressive symptoms through the experiences of sport-specific need frustration (a "dark" pathway). Additionally, as with the first model, cross pathways were also tested to explore whether (a) academic-specific security with a given parent could also affect self-concept by buffering the negative impact of sport-specific need frustration (i.e., perhaps academic-specific parenting behavior "spills over" into other contexts and moderates need satisfaction/frustration in these contexts), and (b) sport-specific insecurity with a given parent could also affect depression by impacting academic-specific need satisfaction, the asymmetrical, cross-contextual pathways (i.e., the idea that parental security in a given context would somehow buffer oppositional effects from the same parent but in a different context) were expected to be less powerful than hypothesized symmetrical paths (i.e., the idea that attachment security in a given context would influence need satisfaction and frustration in that same context).

2.7 Cultural considerations within parental attachment

This project attempts to shed light on a potentially unexplored area of attachment theory by proposing the idea of contextual attachment within parent-child relationships. It should be acknowledged that our initial discussions of plausible attachment contexts have been based on a view of Western children's lives and family structure. It should be noted that cultural differences between children from all types of backgrounds (e.g. Western working- and middle-class, non-Western, rural eco-social environments) also merit significant discussion in relation to the concept of contextual attachment. Perhaps, for example, in other cultures it is not expected that a single attachment figure would be 'involved' significantly in the different contexts that make up children's lives. Perhaps omnipotent involvement in multiple child life contexts is more relevant to certain cultures than others, making context-specific attachment more relevant to these cultures than others. Although the issue of cultural comparisons is not the focus in this thesis (and we are not going into details in this section), it is still important to take the potential cultural differences with respect to child-parent attachment across Western and Eastern (i.e. Taiwan) countries into consideration when making the assumptions of our research and providing explanations of our findings. In the following sections, we focus on discussing the issues concerned in this project, such as parenting differences in sport and academics between Western and Taiwanese cultures as well as culturally ideal parental attachment in Taiwan, to rationalize our subsequent studies and facilitate discussions of findings in terms of developing and validating contextual attachment measurements and examining the associations between contextual parental attachment and children's psychological well/illbeing outcomes.

2.7.1 The nature of Asian (Taiwanese) parenting regarding the contexts of sport and academics

Our proposed concept of contextual parent attachment was mainly based on Western-based literature characterizing that a single attachment figure (e.g. mother, father) is likely to be 'involved' significantly in the different contexts (e.g. sport, academics) that make up children's lives. Similarly, a few cross-cultural or Taiwan-based parenting studies (e.g. Chen & Ho, 2012; Newland, Chen, & Coyl-Shepherd, 2013; Newland, Coyl, & Chen, 2010; Newman et al., 2007) have also provided evidence that Taiwanese parents played an important role in engaging their school-age children in several life domains, such as extracurricular activities (e.g. organised sport), academics, and PA. Nevertheless, research into attachment representations across different relationship referents (e.g. parents, peers, romantic partners) has suggested that it is important to recognize the hierarchical importance

of such attachment representations, as in an abstract sense, children are likely to 'weight' the relative importance of the relationships in their lives and that may determine the impact that specific attachment representations have on their personality and wellbeing (Collins & Read, 1994). In this sense, we suspect that different context-specific attachment representations within specific relationships may also have relative importance that can be hierarchically ordered in children's lives. In other words, (for a variety of reasons) a child may place more hierarchical importance on the sporting interactions they have with their parent than academic-specific interactions, rendering this contextual attachment representation more salient and important in shaping their overall representation of that parent. It may also be the case that different contexts expose children to different attachment representations with a primary figure (e.g. a child may experience her mother as insecure in sport and secure in academics). In this case, the relative importance of different contexts within a given relationship may hold sway over which contextual attachment model influences context-specific psychological outcomes.

In the specific contexts of academics and sport, research (e.g. Ames, 1992; Brophy, 1987) has strongly suggested that parental belief systems in relation to a child's ability and their subjective evaluation of children's successes and failures serve as influential contextual cues that shape children's beliefs, affective patterns and behavioural responses in that context. These context-specific parenting beliefs and behaviours are likely to be built up over time by particular cultural values. Therefore, we thought the relative importance of parental attachment representations in different contexts may be affected by children's perceptions of parental emphasised cultural beliefs and values in specific contexts. Consequently, it seems necessary to discuss those salient values embedded in Taiwanese culture when exploring issues relevant to contextual attachment so that the generalizability of our research findings within this thesis could be considered. According to Cortina and Marrone (2004, p. 136), "Bowlby thought that dyadic relationships do not take place in a vacuum; they take place in a socio-cultural context … Bowlby made it clear that attachment theory was compatible with the socio-cultural school of psychoanalysis. Individuals can only be understood as part of an interactional web that involves families, social and cultural institutions as well as economic realities".

Compared to competitive sport, several studies have documented that Asian parents' aspirations (or expectations) in education are strongly related to their children's high aspirations and excellence in academic achievement (e.g. Chao, 2000; Chen & Stevenson, 1995; Fuligni, 1997; Gonzales et al., 2004; Kao, 1995; Mau, 1997; Yeh, 2003). Furthermore,

research (e.g. Chen & Ho, 2012; Phillipson & Phillipson, 2007) exploring the relationship between parental involvement and Taiwanese students' belief and achievement in academics has indicated that Asian (e.g. Taiwanese) parents' educational values and expectations were largely influenced by the Confucian belief that promoted the importance of being well-educated in order to attain higher social status in the future. Therefore, parents might not only set high standards for children's academic performance, but also invest considerable time, effort and material costs (e.g. help with their schoolwork, provide appropriate home atmosphere for studying, pay for cram schools or tutors, restrict their after-school activities) in their children's education in order to ensure their academic success (e.g. Braxton, 1999; Chao, 1996; Kim, 2002). Moreover, some studies (e.g. Kim & Rohner, 2002; Newland et al., 2013) demonstrated that Asian fathers might emphasize academic outcomes more than mothers. Fathers' supportive involvement in school-related activities could have a more positive influence on Asian children/adolescents' academic success and a negative influence on children's school problems (i.e. negative attitudes towards school) than mothering behaviours. Therefore, it is possible that children are likely to sacrifice social or physical wellbeing to achieve valued academic goals as a result of parents' influence on their values of pursuing activities (Weiss, Larsen, & Baker, 1996). Several cross-cultural research studies (e.g. Fuligni & Stevenson, 1995; Larson & Verma, 1999; Stevenson & Lee, 1990) found that compared to American children, East Asian (particularly Taiwanese) children invested more time in extra academics and less time in play, sport, and leisure activities. Similarly, Newman et al. (2007) compared the participation in after-school activities of primary-school children from three countries holding different social values and expectations in parenting (i.e. Bulgaria, Taiwan, the United States [US]). Their findings indicated that compared to American children, Taiwanese pupils reported spending more time on engaging in academics and extracurricular courses and less time on free play, reading for fun, and engaging in sports or self-chosen activities (which also means more time on adult-chosen activities). Moreover, girls reported spending more time on reading for fun, extracurricular courses, routines and adult-chosen activities and less time on playing or computer games than boys.

In addition, previous studies (e.g. Chen & Uttal, 1988) on cultural comparison of parental expectations and beliefs in children's academic-related achievement have indicated that Chinese (similar to Taiwanese culture) parents placed much higher emphasis on academics than American parents, and Chinese youths seemed more willing to accept their parents' advice and/or care about fulfilling parental expectations in academics than American youths. This is probably due to the fact that Chinese parents tend to emphasize emotional

harmony and control in social relationships, whereas Western parents are inclined to stress individuality and spontaneity (van Ijzendoorn & Sagi-Schwartz, 2008). Furthermore, maintaining close connections with parents (or a lower degree of child-parent conflicts) is Asian children's cultural norm in response to parental behaviours in academics, which actualizes a Confucian practice – *filial piety* (Yeh, 2003; Yeh & Bedford, 2004). In simple terms, filial piety is defined as "providing both emotional and material support to parents …, such as respect, love, and attendance to their needs, deference and compliance to their wishes …" (Chen & Ho, 2012, p. 317). Previous scholars (e.g. Hau & Salili, 1996; Mordkowitz & Ginsburg, 1987) have suggested that filial piety and obedience to parents are two important factors in shaping Asian students' academic values, motivations and achievement. This means that Chinese students are willing or striving to achieve academic excellence as a result of a sense of obligation to repay or honour their parents' sacrifice, emotional support or material investment in education. For example, Chen and Ho's (2012) study specifically examining the mediating effect of two types of filial piety (i.e. reciprocal and authoritarian) on the prediction of parental involvement (e.g. values and attitudes regarding academic effort and success) and children's academic achievement indicated that only the *reciprocal* type of filial piety (characterized as reciprocal and natural intimate affection that is beneficial for decreasing child-parent conflict) played a significant mediating role in this causal relationship within the context of Taiwan. The above-mentioned literature explains our cultural concerns regarding Taiwanese parenting norms and the issue of filial piety. We assume that child-parent attachment representations in the context of academics are likely to have more powerful influences on the outcome variables concerned in this thesis than sport-specific schemata. In the following sections, we suggest how the collectivist value rooted in Taiwanese culture might also be our concern in the conceptualization and measurement of contextual parental attachment in the context of Taiwan.

2.7.2 Cultural differences in ideal attachment

Contemporary attachment-related scholars have suggested that the fundamental tenets of attachment theory are culturally universal while certain specific attachment behaviours might be acknowledged differently across diverse cultural contexts (e.g. Grossmann, Grossmann, & Kepler, 2005; Posada & Jacobs, 2001). However, Wang and Mallinckrodt (2006) claim that the universality and applicability of core concepts and constructs of Western-based attachment theory to non-Western societies have still been the focus of a growing debate between the universalist and relativist viewpoints (Lonner & Ibrahim, 1996).

Previous cross-cultural scholars normally consider measurement equivalence as an indicator to assess the constructs of attachment. The equivalence could be described in four major types – functional, metric/scalar, conceptual and linguistic/semantic equivalence (Hui & Triandis, 1985; Lonner & Ibrahim, 1996). For instance, in terms of child-parent attachment, *functional* equivalence considers whether parental attachment is utilized by children across cultures to arrive at the same results. *Metric/scalar* equivalence concerns whether the same scale value could represent the equivalent degree/intensity of the construct across different cultural groups. *Conceptual* equivalence requires parental attachment to be defined similarly across societies. *Linguistic/semantic* equivalence focuses on whether the measurement transcribed to different languages conveys the intended meaning across cultures. Recently, cross-cultural researchers (e.g. Wang & Mallinckrodt, 2006; Wang & Scalise, 2010; Wang & Song, 2010) have noticed that people's perceptions of attachment-related indicators in Western countries are likely to be different from those of Eastern people, and that might bias research findings. Specifically, the concept of *self-construal* was used to explain why young people in Taiwan and the US perceive and explain attachment differently. This trait-like self-construal (i.e. *independence* and *interdependence*) has been broadly used in describing the differences in people's beliefs, feelings, attitudes and behaviours towards interpersonal relations (especially the degree of separation or connectedness between the self and others) across cultures (e.g. Markus & Kitayama, 1991; Triandis, 1996).

In traditional Chinese societies (e.g. Taiwan), interpersonal interactions (particularly child-parent relationship) are focused on practicing collectivism and filial piety (e.g. Newland et al., 2010; van Ijzendoom & Sagi-Schwartz, 2008), which place "a strong emphasis on interdependence and connectedness among individuals … [that] favour development of a relatively strong interdependent self-construal" (Wang & Mallinckrodt, 2006, p. 194). Theoretically, Taiwanese people holding this type of self-construal are more concerned about harmonious interpersonal relationships, indirect self-expression, meeting their social obligation, and other members' views in their social group to maintain their self-esteem and status. They are also more willing to sacrifice personal needs and goals for the benefits of their social reference group because they consider themselves as part of a set of social relations, inseparable from their belonging relational context (Markus & Kitayama, 1991; Triandis, 1996). Conversely, people ascribing to Western culture "generally value individualism and emphasize the uniqueness, independence, and rights of an individual to act free of the constraints of others" (Wang & Mallinckrodt, 2006, p. 194). Individualistic values are normally conducive to the development of independent self-construal stressing self and

others as separate units, favouring distinct self-other boundaries, unique personal abilities and dispositions, self-interest pursuit, and direct self-expression (Markus & Kitayama, 1991). In light of the conceptual links between self-construal and attachment theory (in terms of being concerned with predictable patterns within relationships between self and others), people's beliefs about culturally ideal attachment are likely to be developed from their independent or interdependent orientations of self-construal that stemmed from underlying individualist or collectivistic value. More specifically, Wang and Mallinckrodt (2006) explained that in adult romantic relationships, Western people normally holding *independent* self-construal believe that the norms of proper behaviours and attitudes should maintain a certain balance between independence and obligation to partners, reasonable expectations of partners' supports, and a proper level of one's worth and esteem in the eyes of one's partner. These cultural-based values might contribute to the formation of a romantic couple's attachment-related beliefs of self and other (e.g. how to communicate their own needs and feelings, when and how to deal with their conflicts, how much support and response from each other is to be expected), which is also in line with the conceptualization of Western-based 'secure' attachment affect, cognition and behaviours (Wang & Mallinckrodt, 2006).

However, Taiwanese people favouring the beliefs of *interdependent* self-construal are likely to exhibit emotionally restrained characteristics or more reserved norms in their interpersonal relationships, such as indirect communications; discouragement of overt expressing of personal emotion, feelings and thoughts; the need to seek approval and recognitions from others; worries about not belonging to social groups; and reluctance to express personal needs or ask for help from others, in order to maintain interpersonal harmony. These traditional Chinese (Taiwanese) cultural values might not fit in conceptually with Western-based secure attachment characteristics. In simple terms, *culturally ideal attachment* is characterized as one's beliefs of an ideal emotionally and psychologically healthy person of one's own gender in one's culture within a particular attachment relationship (e.g. Wang & Mallinckrodt, 2006; Wang & Scalise, 2010; Wang & Song, 2010). For example, a behavioural indicator for securely attached Western adults in a Western-based scale (ECR-S, Brennan, Clark, & Shaver, 1998) such as "I tell my partner just about everything" seems to be a reasonable description of secure attachment representation within Western romantic relationships, but it can be deemed a representation of a quite immature and selfish burdening of one's partner with what should remain a private concern within Taiwanese culture (Wang & Mallinckrodt, 2006).

In addition, cognitive indicators for insecurely attached Western adults such as "I prefer not to show a partner how I feel deep down" describe exact and common Taiwanese cultural beliefs within romantic relationships; however, the higher scores in the Western-based ECR-S are likely to be over-pathologized as an intensively avoidant tendency in the referent relationship (Wang & Mallinckrodt, 2006). Similarly, the scores of Taiwanese adults in an cognitive indicator such as "I worry a fair amount about losing my partner" might be much higher than the scores of Western adults in the ECR-S as they fully reflect Taiwanese cultural values, such as maintenance of a close connection to families, interdependent relationships, and mutual obligation. Therefore, being seriously anxious about family issues is highly recognized and appreciated in the society (Wang & Mallinckrodt, 2006). However, Wang and Mallinckrodt (2006) found that there was no significant difference in the levels of independent and interdependent self-construal beliefs between undergraduates in the US and Taiwan, and they have strongly argued that future studies considering using the etic methodology (i.e. using the theoretical framework outside the culture where researchers investigate to explore human behaviours) should pay attention to these cultural issues and susceptibility in interpreting findings. Therefore, some additional cultural concerns in (quantitative and qualitative) measurement of contextual parental attachment in this project are discussed further in the following section in order to justify our research assumptions, goals and findings in this project.

2.8 Measurement of parental attachment

At the beginning of this section, it is necessary to clarify the differences between the two methodological traditions (i.e. psychodynamic vs. personality and social psychology) along with the strengths and weaknesses of these two routes in attachment research to justify our scientific position in this project.

2.8.1 The methodological traditions in attachment literature

To date, attachment-related studies have adopted various methodological approaches (e.g. self-report assessments, interview, behavioural observations, experimental manipulation) to explore diverse human relationships (Shaver & Mikulincer, 2002). The majority of the attachment literature based on Bowlby and Ainsworth's attachment theory has diverged into two distinct research traditions – the psychodynamic and personality-social psychological approaches (Bartholomew & Moretti, 2002; Carr, Colthurst, Coyle, & Elliott, 2013). Many of the distinctions between these two lines of enquiry are reflected in the issues

of how attachment research is conceptually underpinned, how attachment is measured, and how results are interpreted. Specifically, the tradition of *psychodynamics* posits that people are unconscious of the dynamics of their internal working models. In other words, individuals' appraisal of threats and dangers, which, in turn, automatically activates the attachment behavioural system (i.e. primary or secondary strategy), is considered to be operated unconsciously and can shape their state of mind and behaviours before they recognize the activation in the stream of consciousness (Mikulincer & Shaver, 2003). To capture these unconscious manifestations of attachment, scholars (e.g. developmental psychologists, clinicians) following this line of research favour the use of observational, interview or priming techniques, allowing one's unconscious awareness (e.g. inner conflict, psychological defences) to be detected.

For example, this approach, which provides important clues to underlying attachment concerns, is especially useful for conducting research with *insecurely* attached individuals whose responses in self-report measures are considered to be defensively distorted (Bartholomew & Shaver, 1998; Ravitz, Maunder, Hunter, Sthakiya, & Lancee, 2010). This means that people with an avoidant attachment style used to adopt 'deactivating' strategies operating at an unconscious level might not be aware of their suppression or rejection of the measurable needs for protection and care as well as their painful attachment-related experiences and feelings (Cassidy & Kobak, 1988). Moreover, these secondary strategies are likely to operate either in tandem or in opposite ways on conscious and unconscious levels, leading to insecurely attached people's conflicting tendencies towards the self and others within close relationships or psychological defences against attachment-relevant insecurities and distress. For instance, people adopting hyperactivating strategies are likely to attain a compromise between conflicting tendencies towards caregivers, namely exhibiting extreme anger and hostility towards careless attachment figures together with a strong need for closeness and proximity to these disappointed caregivers (Cassidy & Kobak, 1988).

Furthermore, people employing deactivating strategies might report their lack of negative emotions and a detached attitude towards caregivers on a conscious level; however, their high tension and unresolved distress in an attachment sense are measurable or observable on an unconscious level (Shaver & Mikulincer, 2002). The majority of researchers investigating these issues are more interested in clinical problems and may prefer to approach the measurement of attachment constructs through the stream of interview procedure (and coded narratives) to assess one's 'state of mind' with respect to attachment. For example, the Adult Attachment Interview (AAI) (George, Kaplan, & Main, 1985) has

been considered as a well-validated instrument to investigate individuals' 'unconscious' processes for emotional regulations while discussing their attachment-related experiences, such as asking interviewees to talk about their separation from parents or what happened (e.g. behavioural or emotional responses) when they feel upset, sick or pain during childhood (Main & Goldwyn, 1998). Trained coders' analytical strategies normally focus on *how* people talk about their interactions with parents during childhood, but not *what* they describe in their relationships with parents (i.e. the *content* of their expressions) (Jacobvitz, Curran, & Moller, 2002).

Conversely, the tradition of personality-social psychology conceptualizes attachment styles as systematic patterns of one's expectations, needs, emotions and affection-regulation strategies, and these unique internal working models between individuals are a result of the interactions of their innate attachment behavioural systems (Bowlby, 1969, 1982; Shaver & Mikulincer, 2002). Attachment theorists (normally social and personality psychologists) following this stream of research tend to premise that people are aware, and can have fairly accurate expressions, of their feelings and behaviours in close relationships (Bartholomew & Shaver, 1998). They are more interested in normal subject populations and prefer using simple questionnaire measures with large samples (especially investigating adult attachment and romantic relationships). For instance, Hazan and Shaver (1987) noticed parallels between Ainsworth et al.'s (1978) conceptualized three types of infant-mother attachment (i.e. security, avoidance, anxiety) and patterns of feelings and behaviours in romantic relationships. They initially designed a qualitative (three-category) self-report instrument to be suitable for use in experiments and surveys. Subsequently, several studies (e.g. Bartholomew & Horowitz, 1991; Brennan et al., 1998; Fraley & Waller, 1998) improved Hazan and Shaver's categorical (self-classification) idea of attachment-related feelings, thoughts and behaviours by conceptualizing adult attachment as a two-dimensional space (i.e. attachment-related anxiety and attachment-related avoidance).

This type of self-report measure adopted a quantitative (self-ratings) manner, allowing participants' conscious appraisals of themselves within close relationships to be tapped by rating several items designed to tap two dimensions underlying differences among attachment styles (e.g. Brennan et al., 1998; Collins & Read, 1990; Simpson, 1990). For example, these measures normally ask people to recall the most important relationships with close partners and rate items representing the avoidant dimension, such as "I try to avoid getting too close to my partner", or items representing the anxious dimension, such as "I need a lot of reassurance that I am loved by my partner", by selecting the score that they think is

the best rating to reflect their feelings on a Likert-like scale. The type of attachment security can be identified in a region where people's (overall or average) scores on both anxious and avoidant dimensions are low. Furthermore, people's scores in a region where anxiety is high and avoidance is low (or anxiety is low and avoidance is high) are normally identified as the anxious (or avoidant) attachment type.

The strengths and weaknesses of these two major routes (i.e. psychodynamics and personality and social psychology) in attachment literature have been discussed and compared by contemporary researchers (e.g. Bartholomew & Shaver, 1998). For example, studies following the perspective of psychodynamics are beneficial for understanding attachment-related unconscious processes in which participants' biased responses on questionnaires can be detected through interview procedures. Nevertheless, this research approach also has some apparent drawbacks in terms of its impracticality for conducting qualitative research, such as considerable investment in time for learning interview skills, training for necessary procedures (e.g. transcription, coding), and additional financial costs. Moreover, this type of research does not generally use other rigorous research procedures and measures (e.g. semantic or affective priming, reaction times) to test causal hypotheses about the functioning of the attachment system experimentally (Shaver & Mikulincer, 2002). Conversely, research following the route of personality and social psychology favour the use of self-report measures as a medium to explore one's conscious awareness of attachment as a result of its convenience to researchers in terms of time consumption (e.g. obtaining large data in a short time) and material cost. However, this quantitative approach also has some concerns with respect to the validity of attachment measures. For example, it only focuses on the views that a person currently holds and is not active to detect one's unconscious manifestation of attachment that needs be activated so that all aspects of a person's attachment-related schemata could be understood as a whole (Bartholomew & Shaver, 1998). Although some scholars have argued that self-report assessments can still elicit some convenient surface indicators of underlying attachment dynamics, they cannot plumb the psychodynamic depths revealed by interview measures (Bartholomew & Shaver, 1998).

Synthesizing the strengths and weaknesses of both methodological routes, we agreed that "…interviews provide a way of understanding the psychological meaning of attachment within the unique context of an individual's life. Perhaps the joint use of self-reports and interviews would provide the window into attachment dynamics with the best view, particularly… integrating classic psychodynamic concepts into mainstream empirical research" (Bartholomew & Moretti, 2002, p. 165). Therefore, in this project we sought to

adopt both research approaches (quantitative method followed by qualitative interview) in a series of studies. Specifically, we initially conceptualized contextual attachment characteristics in a social psychological sense using a self-report paradigm as the basis for our first three studies because much of the above-mentioned research that we have connected our ideas to in this project stems from assumptions made by the personality and social psychology tradition. We have advocated and relied upon assumptions that lend themselves easily to a self-report paradigm and it would seem logical and expedient to first investigate context-specific attachment in a large sample through the development of self-report items designed to tap into within-person variation between contexts. Such self-report measures may begin to permit measurement of how specific attachment figures are consciously experienced (in relation to security and insecurity) within specific contexts. These perceptions can then be explored in relation to how they relate to each other (e.g. are context-specific attachment perceptions radically different within a given parent? Or are they similar?), whether this matters (e.g. does it matter whether children experience their parents differently across contexts?), and how such context-specific perceptions in relation to one's psychological outcomes.

Nevertheless, it is necessary to pay close attention to individual, family and socio-cultural contexts so that children's attachment relationships can be fully understood (e.g. Belsky & Pasco, 2008; van Ijzendoom & Sagi-Schwartz, 2008). Because of our above-mentioned concerns – cultural differences might contribute to different parenting across sport and academics as well as one's belief of self-construal – we thought it is also important to investigate in depth the possibility of exploring within-person attachment variation using assessment tools that move beyond self-report and focus upon issues in Taiwanese culture, including deeper qualitative exploration of a) the meaning and unconscious experience of within-person contextual variation, (b) how subconscious processing and characteristics are orchestrated contextually, and (c) whether attachment figures themselves are aware of the contextual fluctuation detected by children. It is important to expand this area of research in a broader sense than self-report alone would permit. These qualitative enquiries in a small sample might provide more informative evidence for our conceptualization and (self-report) measurement of contextual parental attachment within the context of Taiwan. In the following section, first, each methodology of measurement is outlined. Subsequently, common attachment instruments previously used in the context of sport and academics and some cultural considerations in assessing parental attachment across two contexts in Taiwan are discussed.

2.8.2 Measurement of attachment: Qualitative and quantitative approaches

A great deal of research using different approaches to measuring/classifying individuals' attachment types across various developmental stages has inspired from Ainsworth et al.'s (1978) strange situation paradigm. Namely, assessing infant-parent attachment orientations (i.e., secure, ambivalent/resistant, avoidant) by coding the observed degree to which infants utilize the primary caregiver as a secure base while engaging new environment. Subsequently, the measure of *qualitative interview* – Adult Attachment Interview (AAI; George et al., 1996; Hesse, 2008) originally developed to explore infant-parent attachment patterns is further employed to assess adults' attachment experiences with parents during childhood through the specific coding scheme focusing on those predictive clues (e.g., coherence of mind, idealization of caregiver) in interview discourse. AAI is used to classify three major categories of attachment (i.e., secure/autonomous, avoidant/dismissing, anxious/preoccupied, cannot classify) based on coders' evaluation of the self-description content of one's childhood experiences with parents from the transcripts (but not the quality of one's relationship). Following AAI, the Current Relationship Interview (CRI; Crowell & Owens, 1996) is another popular instrument commonly used in investigating adult attachment experiences in romantic relationships, assessing people's self-description, of their relationship, and of the experiences of using their partner as a secure base, or of being a secure base for their partner. Similar to AAI's technique, the classification of CRI also evaluates one's self-described narratives (i.e., the coherence reports of their experiences of being a secure base of their partner or being a secure base for partners, dismissing the importance of their relationship, being preoccupied or controlling in relationships) and yields three categories of attachment (i.e., secure, anxious, and avoidant types).

The approach of *quantitative self-report measure* initiating with Hazan and Shaver's (1987) Adult Attachment Scales (AAS) assumed people's attachment experiences/histories could be classified according to how they think, feel, and behave in intimate relationships. This forced-choice categorical measure is initially operated by presenting participants with three prototypes (i.e., secure, avoidant, anxious/ambivalent) of attitudes towards their close relationships and asking them to choose a prototype (e.g., cameos, scenarios) which is best fit in with their self-description. Following Hazan and Shaver's AAS, other attachment scholars (e.g., Simpson, 1990; Collins & Read, 1990) further improved this version of categorical measure by decomposing the types of prototypes into individual items in a continue scale.

This is because several limitations of categorical measures have been criticized in terms of theoretical (i.e., overlook the importance of subtle differences among individuals classified within the same specific attachment styles) and measurement (i.e., relative weakness in statistical power compared to dimensional ones) concerns. Collectively, dimensional scales have been claimed to be more accurate and reliable in evaluating qualitatively and quantitatively individual difference in attachment state of mind (e.g., Mikulincer & Shaver, 2007; Ravitz et al., 2010). For example, Simpson's (1990) Adult Attachment Questionnaire (AAQ) was a two-dimensional scale (i.e., avoidant, anxious) revised from AAS which used to measure subjects' degree of agreeing each statement describing their feelings toward a given romantic partner on a Likert-type scale. Moreover, Collins and Read (1990) extended the categorical version of AAS to form a three-dimensional (i.e., comfort with closeness, comfort with dependency, and anxious concern about abandonment and love) Likert-type measure of AAS which also used to evaluate individuals' self-reported extent of agreeing each statement describing their feelings toward an intimate partner on a continue scale.

Following these, due to attachment researchers' favour of dimensional scales, a bulk of questionnaire-based scales has been purposely yielded (either revised versions of previous scales or new developed version) to be utilized in diverse situations that researchers concern. To date, the majority of self-report measurements proposed to assess child-parent attachment patterns and close relationship can be categorized into two and three dimensions (refer to a systematic review in current attachment measures; Ravitz et al., 2010). Specifically, *two dimensions* of attachment instruments, such as the Experiences in Close Relationships Scale (ECR; Brennan et al., 1998) and Close Relationships – revised (ECR-R) measuring one's *attachment anxiety* and *avoidance* in romantic relationships or in general. The Relationship Style Questionnaires (RSQ; Griffin & Bartholomew, 1994) assessing one's *attachment model of self* and *others* in romantic relationships. Attachment and Object Relations Inventory (AORI; Buelow, McClain, & Mclntosh, 1996) measuring one's *view of self* and *others* in close relationships (i.e., parents, peers, partners, and self). The Vulnerable Attachment Style Questionnaire (VASQ; Bifulco et al., 2003) evaluating *insecurity* and *proximity seeking* in general. Parenting Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979) measuring *parental care* and *protection* in child-parent relationships.

Moreover, *three dimensions* of attachment scales, such as the Adolescent Attachment Questionnaire (AAQ; West et al., 1998) assessing *availability, angry distress*, and *goal-corrected partnership* in adolescent-parent relationships. The State Adult Attachment measure (SAAM; Gillath et al., 2009) measuring *security, anxiety*, and *avoidance* in close

relationships. The Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987) evaluating *communication, trust*, and *alienation* in close relationships (i.e., parents and peers). The Parental Attachment Questionnaire (PAQ; Kenny, 1987) assessing *affective quality of relationships, fostering of autonomy*, and *provision of emotional support* in adolescent-parent relationships. Besides, very rare instruments have measured four dimensions of attachment, such as the Reciprocal Questionnaire (RQ; Batholomew & Horowitz, 1991) evaluating one's *secure, preoccupied, dismissing*, and *fearful* aspects of attachment in romantic relationships. Whilst previous attachment-related measurements have provided fruitful resources for researchers to assess interpersonal relationships in various domains, Ravitz et al. (2010) have suggested that it is important to take seriously on which measure is better fit in with the specific patterns of cognitive and behavioural that researchers concern. This is because the activation of attachment behaviours are normally contingent to characteristics of the network or features of the situation that being conceived as danger, threat, or isolation, and this behavioural patterns of attachment are likely to exert a trait-like consistency in such particular contexts. Thus, attachment measures should be carefully chosen when conducting research as "their sensitivity to the activation or inactivation of attachment phenomena [may bias research findings] … some measures [such as Gillath et al.'s (2009) SAAM] may be more sensitive to state-dependent changes [and some may be more sensitive to trait/context/relational-dependent changes]." (Ravitz et al., 2010, p.421). In other words, the assessments of attachment-related experiences in child-parent relationships, in romantic relationships, and in general relationships might be not interchangeable. Even in the same relational domain (e.g., family) a person's attachment memories with mother might be different from the memories with father (Ravitz et al., 2010).

2.8.3 Measurement of attachment in the context of sport and academics

Collins and Read (1994) have suggested that "… models in the attachment network are not likely to be replaced or destroyed, but that one's network will become more elaborated and more complex, containing a number of more specific sub-models … [and these] multiple models of attachment provide … the flexibility necessary to function adaptively and to satisfy attachment needs in a complex social world". With individuals' growth in the experiences of interpersonal interactions, attachment networks could be further developed beyond their early bonds with parents. Specifically, the majority of schoolchildren's daily life are composed of sport and academics where the potential attachment bonds with others could be formed through providing immediate and better

functionally adaptive support in time of need in the "venues" of sport training/competition and school/classrooms. For example, coaches have been conceived as primary attachment figures of athletes *within organized sport* (e.g., Jowett, 2008; Davis & Jowett, 2010; Davis & Jowett, 2013), however, none of attachment instruments were especially designed for investigating athlete relationships with coaches till Davis and Jowett's (2013) study. Their research noticed the previous limitations in the measure of athlete-coach relationships (see Davis & Jowett, 2012) and potential psychometric problems in utilizing existing instruments developed in other relational contexts (e.g., ECR; Brennan et al., 1998). Thus, a Coach-Athlete Attachment Scale (CAAS) with two-factor (i.e., anxious and avoidant) or three-factor (i.e., secure, anxious and avoidant) specified to the context of sport and coaching was initially developed and validated in their study.

Apart from sporting domain, school-age pupils are also likely to develop specific attachment bonds with teachers in the context of school. Recently, Granot (2016) explored the associations between student-teacher attachment-like relationships and the socioemotional adaptation of students with disabilities, employing a two-subscale (i.e., availability and rejection) Children's Appraisal of Teacher as a Secure Base Scales (CATSBS; Al-Yagon & Mikulincer, 2006). In their study, the self-report CATSBS was used to measure students' perceptions of their home-teacher as a secure base from both a positive (availability, acceptance) and a negative (rejection) perspective in school/classrooms. Besides, some attachment-related studies (e.g., Riley, 2009; Granot, 2016) in the field of school teaching have employed ECR (Brennan et al., 1998) to investigate teachers' self-report attachment styles (in general) and the Student-Teacher Relationships Scale (STRS; Pianta & Steinberg, 1992). Both scales were used to assess teachers' perceptions of attachment relationships with students.

Abovementioned relational-specific instruments are specified to assess attachment dyadic bonds formed from particular venues (e.g., athlete-coach dyad in sporting fields, student-teacher dyad in school/classrooms). In terms of child-parent attachment relationships, although past studies have heavily investigated parental attachment in specific contexts of sport/PA and academics/education, a variety of instruments previously used were just located at the specificity of *pan-domain global* representations which neither specified particular attachment figure (e.g., parent) nor context (e.g., sport, PA, academics). For instance, research (e.g., Ullrich-French et al., 2011; Li et al., 2016; Lisinskiene & Juskeliene, 2019) in the context of *PA* has employed IPPA (Armsden & Greenberg, 1987), the Chinese-version IPPA-R (Zhang et al., 2011), and IPPA-R for children (Gullone & Robinson, 2005) to

measure adults' and adolescents' perceptions of general attachment relationships with parents. Studies (e.g., Felton & Jowett, 2013a, 2013b, 2017; Carr, 2009; Carr & Fitzpatrick, 2011) in the context of *sport* have used ECR-S (Wei et al., 2007) to assess athletes' general experiences in close relationships and AAQ (West et al., 1998) to evaluate adolescents' perceptions of relationship with an assigned parent. Literature (e.g., Maltais et al., 2015; Newland et al., 2010, 2013; Wright et al., 2014; Carr et al., 2013) in the context of *academics/education* has administrated ASS (Kerns et al., 1996), CRA (Roggman et al., 2001), ECR-R (Fraley et al., 2000), and VASQ (Bifulco et al., 2003) to measure adults' and children's perceptions of general attachment relationships with an assigned parent.

Several attachment scholars (e.g., Gillath et al., 2009; Davis & Jowett, 2013, Gill, Dzewaltowski, & Deeter, 1988; Vealey, 1986) have suggested that some potential psychometric problems and conceptual inconsistencies might be arose when researchers utilize measurements developed within a specific context (e.g., sport, coaching), relational domain (e.g., athlete-coach dyad), or a particular specificity in attachment hierarchy (e.g., global/state representations) to a different context (e.g., academics, teaching), relational domain (e.g., child-parent dyad), or specificity of attachment (e.g., contextual schemata). For instance, the items of Davis and Jowett's (2013) CAAS, such as "I am concerned that my coach will find another athlete that he/she prefers" or " I often worry that my coach does not want to coach me anymore" supposed to evaluate athlete-coach attachment relationships might not be appropriate and sensible to be used in the assessment of child-parent attachment-related interactions within the context of sport. Plus, the item of West et al.'s (1998) AAQ (e.g. "I enjoy helping my parent whenever I can") supposed to assess children's attachment relationships with parents in general is also not suitable for the context of academics and sport because it does not sensibly describe child-parent attachment interactions in specific contexts, like sport or academics. Thus, in this thesis we do not favour to revise existing instruments to assess contextual attachment patterns within a particular child-parent relationship. Besides, due to some cultural concerns between Western and Asian (Taiwanese) people (e.g., the beliefs of self-construal and parenting across sport and academics), we do not prefer to revise and validate specific Western-based attachment measure but rather create new instruments that can be utilized in assessing contextual parental attachment within Taiwanese culture.

2.8.4 Cultural considerations in measures of contextual parental attachment

Cross-cultural attachment researchers (e.g. Carr et al., 2013; Rothbaum et al., 2000; Takahashi, 1990; Wang & Mallinckrodt, 2006; Wang & Scalise, 2010) have suggested that attachment constructs and self-report instruments developed and validated within the context of Western culture might not be readily applicable to Asian populations (e.g. Taiwanese) without considering that specific cultural beliefs and norms (e.g. collectivist values, beliefs of interdependent self-construal) could result in Asian people having biased scores and responses on Western-based self-report measures. Specifically, several studies (e.g. Ditommaso, Brannen, & Burgess, 2005; Malley-Morrison, You, & Mills, 2000; Rastogi & Wampler, 1999; You & Malley-Morrison, 2000) comparing the cultural differences in people's perceptions of attachment styles within their close relationships have revealed similar results. For example, compared to European American counterparts, Korean adults had higher preoccupied attachment tendency as well as lower expectations (i.e. intimacy, friendships) of their close relationships and higher elder abuse (Malley-Morrison et al., 2000; You & Malley-Morrison, 2000). Rastogi and Wampler (1999) also indicated that Asian Indians had a higher level of attachment closeness and dependence than European American counterparts. Furthermore, Chinese adults scored lower on attachment security in their romantic relationships than Canadian adults (Ditommaso et al., 2005). Moreover, a large-scale cross-cultural research study (in which participants were recruited from 62 countries) conducted by Schmitt et al. (2004) reported a higher proportion of preoccupied attachment patterns in romantic relationships within East Asian cultures compared to other regions.

Within Taiwanese culture, studies in cultural comparisons using Chinese-version attachment scales adapted from Western-based measures (i.e. ECR, Brennan et al., 1998; CRA, Roggman et al., 2001) in investigating child-parent attachment have also found that Taiwanese schoolchildren exhibited a more ambivalent/resistant and less secure exploration tendency than US children (e.g. Newland et al., 2010). Furthermore, Taiwanese adults with indigenous Chinese cultural backgrounds revealed higher levels of attachment anxiety (for men) and attachment avoidance (for women) than US adults (e.g. Wang & Mallinckrodt, 2006; Wang & Scalise, 2010). This is probably due to the fact that Taiwanese adults normally hold beliefs of *interdependent* self-construal, which means they are more likely to exhibit an emotional restrained tendency or more reserved norms in their close relationships. Specifically, *males* are more likely to seek approval and recognition from their partners as well as worry about being abandoned in their romantic relationships, and *females* exhibit straightforward communications, such as overt expressions of personal opinions and emotional needs to partners (e.g. Wang & Mallinckrodt, 2006; Wang & Scalise, 2010). We

suspect that children's attachment-related interactions with parents within the sport and academics contexts might also reflect some degree of similar Taiwanese-specific attachment attributes within the context of general interpersonal interactions. Therefore, although the majority of contemporary attachment instruments developed are based on Bowlby and Ainsworth's proposed three constructs of attachment (i.e. secure, anxious, avoidant), we are inclined to be open (but with reasonable consideration) in our assumption of the number and characteristics of attachment constructs for our proposed measurements of contextual parental attachment in this thesis.

Furthermore, to date, Taiwanese-based attachment measurements are still very rare, such as IPPA-C (Sun, 2004), ECR-C (Mallinckrodt & Wang, 2004), RSQ-C (Wang & Neville, 2006), and RAAS-C (Huang & Chen, 2011). Although RAAS-C has been well validated from RAAS (Collins, 1996), the factor structures were different from Collins' original version, and some of RAAS-C's items apparently could not be reworded to be suitable for describing child-parent attachment interactions in the contexts of sport and academics. Apart from that, to our knowledge, existing Chinese-version attachment instruments were all revised and validated from specific "Western-based" instruments. They might be not considered as well-validated measurements because most of them have only been validated for factorial composition, semantic equivalence, or internal reliability, but not tested for other relevant equivalence (e.g., scalar/metric, conceptual) across cultures. In light of aforementioned concerns, instead of validating specific Western-based attachment instruments, in this thesis we favour to develop and validate contextual parental attachment measures that are suitable for use in the contexts of sport and academics within Taiwanese culture.

2.9 Conclusion

Attachment-related experiences with primary caregivers (normally parents) at early developmental stages have considerable and prolonged influences on one's personal growth, interpersonal relationships, and psychological well/ill-being (Bowlby, 1969/1982, 1973, 1982; Mikulincer and Shaver, 2016). However, no research to date has explored the possibility of context-specific, within-person fluctuation in attachment security, especially within a specific child-parent relationship. The ultimate aim of this thesis was therefore to explore if parental attachment is a contextual structure and how context-specific child-parent attachment relationships in relation to children's psychological well/ill-being. Four distinct, but related, research (combining three quantitative and one qualitative studies) included

within this thesis investigated how context-specific attachment within a specific child-parent relationship in relation to children's psychological outcomes with the intention of addressing gaps in the literature and advancing our understanding of the nature of context-specific attachment and how it relates to children's well/ill-being through an approach of mixed-method methodology.

The objective of *chapter three (study 1)* was to develop and validate the Traditional-Chinese version of contextual attachment scales to assess youth athletes' attachment styles with a given parent within the context of sport (CAS-S) and academics (CAS-A) by employing a two cross-sectional research design. Next, the objective of *chapter four (study two)* was, based on the proposed concept of contextual attachment and hierarchical structure representations within specific relationships in chapter two (literature review), to explore the contextual structure of parental attachment and their associations with children's global-level attachment characteristics and psychological-related outcomes by utilizing CASs validated in chapter three (study one). More specifically, a cross-sectional study was designed to explore (1) whether youths' attachment schemata in relation to a particular parent could vary across contexts, (2) whether contextually-different attachment profiles associate with youths' perceived global and context-specific psychological need satisfaction and need frustration, as well as self-concept and depression, (3) whether the degree of fluctuation in parental attachment security between contexts relates to youths' global psychological need satisfaction and frustration, self-concept, and depression. Furthermore, the objective of *chapter five (study three)* was aimed, grounded on attachment theory and self-determination theory (SDT), to explore the mechanism of how perceived context-specific attachment influences youth's self-concept and depressive symptoms through the mediating role of youths' experiences of need satisfaction and need frustration in specific contexts. Finally, the objective of *chapter six (study four)* aimed to further understand the nature of the reported contextual attachment within child-parent relationship in the quantitative findings (study one to three) and attachment differences across the contexts of sport and academics through a qualitative exploration of child and parent experiences. Two key research questions were guided for achieving this aim: (1) What are children's experiences of contextual attachment across the contexts of sport and academics? (2) What could explain these contextually-different experiences in relation to children's psychological outcomes? This study is expected to practically provide parenting suggestions and guidance, particularly in the contexts of sport and academics.

Chapter 3 Study 1: Development and Validation of the Contextual Attachment Scale (CAS) in Traditional-Chinese Version

The aim of *chapter three (study 1)* was to develop and validate the Traditional-Chinese version of contextual attachment scales to assess Taiwanese youth athletes' attachment styles with a given parent within the context of sport (CAS-S) and academics (CAS-A) by employing a two cross-sectional research design.

Statement of Authorship

This declaration concerns the article entitled:					
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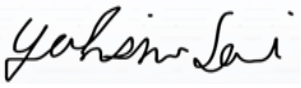
Candidate's contribution to the paper (detailed, and also given as a percentage).	The candidate contributed to/ considerably contributed to/predominantly executed the... Ya-Hsin Lai made considerable contributions to the conception of this study and the methodological design (95%). Ya-Hsin Lai predominantly executed the field work, including the acquisition, analysis and interpretation of data for the study (95%). The presentation of the data in journal format was predominantly executed by Ya-Hsin Lai (95%).				
Statement from Candidate	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature.				
Signed			**Date**		

Development and Validation of the Contextual Attachment Scale (CAS) in Traditional-Chinese Version

Abstract

The purpose of the present study was to develop and validate the Traditional-Chinese version of contextual attachment scales to assess Taiwanese youth athletes' attachment styles with a given parent within the context of sport (CAS-S) and academics (CAS-A). Two cross-sectional studies were conducted in samples of 115 (study one) and 256 (study two) youth athletes. The development and validation composed of three main phases. Phase 1 administrated focusing on the procedures of item and scale development demonstrated a good content validity for the final revised pools of 21 sport-specific and 21 academic-specific items examined by a diversity of panels. Phase 2 focusing on processing item reduction and extraction of factors by conducting EFA indicated the final 7-item CAS-S and 11-item CAS-A meet several criteria of validity and are considered as appropriate measurements. CFA was further conducted in phase 3 aiming at confirming the initial structures of CAS-S and CAS-A explored in EFA. Results revealed that the initial pool of 7 items, representing 3 secure items and 4 insecure-avoidant items, in the sport-version scale satisfactorily meet the expected criteria. Similarly, the results of CFA also indicated that the pool of 7 items, representing 3 secure items and 4 insecure items, in the academic-version scale satisfactorily meet the criteria. Furthermore, the results of both scales also demonstrated that a secure attachment style could positively predict sport/academic-specific satisfaction and negatively predict sport/academic-specific frustration. And an insecure or insecure-avoidance style was a positive predictor of sport/academic-specific frustration and a negative predictor of sport/academic-specific satisfaction. Overall. the CAS-S and CAS-A revealed well psychometric properties of content, factorial, and predictive validity, as well as reliability.

Introduction

A great deal of studies, to date, have utilized several attachment-related instruments to examine the associations between individuals' attachment patterns with various significant others (e.g., parents, coaches, teachers) and psychological and achievement outcomes within sport/PA and academics/education/school (e.g., Felton & Jowett, 2013a, 2013b, 2017; Jowett, 2008; Davis & Jowett, 2010; Davis & Jowett, 2013; Riley, 2009; Granot, 2016). Unfortunately, previous research has demonstrated several key limitations and cultural concerns that suggests existing attachment-related instruments might not suitable for directly use in investigating context-specific child-parent attachment patterns (i.e., children's attachment characteristics with a given parent in specific contexts of sport and academics) within Taiwanese culture. More specifically, the major limitation is that a great deal of studies has investigated parental attachment in specific contexts of sport/PA and academics/education. However, the majority of them has tended to think about child-parent attachment patterns on a global-level and used global patterns of attachment (or pan-domain global representations) to predict context-specific psychological outcomes.

For instance, research (e.g., Ullrich-French et al., 2011; Li et al., 2016; Lisinskiene & Juskeliene, 2019) in the context of PA has employed IPPA, the Chinese-version of IPPA-R, and IPPA-R for children (Armsden & Greenberg, 1987; Gullone & Robinson, 2005; Zhang et al., 2011) to measure adults and adolescents' perceptions of general attachment relationships with parents. Studies (e.g., Felton & Jowett, 2013a, 2013b, 2017; Carr, 2009; Carr & Fitzpatrick, 2011) in the context of sport have used ECR-S (Wei et al., 2007) to assess athletes' general experiences in close relationships and AAQ (West et al., 1998) to assess adolescents' perceptions of relationship with an assigned parent. Research (e.g., Maltais et al., 2015; Newland et al., 2010, 2013; Wright et al., 2014; Carr et al., 2013) in the context of *academics/education* has also administrated ASS, CRA, ECR-R (Fraley et al., 2000), and VASQ (Bifulco et al., 2003; Kerns et al., 1996; Roggman et al., 2001) to evaluate adults and children's perceptions of general attachment relationships with an assigned parent. Notably, none of research (if any) investigating parental attachment relationships within specific contexts (e.g., sport, PA, academics, education) employed *context-specific* attachment measures.

Several attachment scholars (e.g., Gillath et al., 2009; Davis & Jowett, 2013, Gill et al., 1988, Vealey, 1986) have suggested that some potential psychometric problems and conceptual inconsistencies might be arose when researchers utilize measurements developed within a specific context (e.g., sport, coaching), relational domain (e.g., athlete-coach dyad),

or a particular specificity in attachment hierarchy (e.g., global/state representations) to a different context (e.g., academics, teaching), relational domain (e.g., child-parent dyad), or specificity of attachment (e.g., contextual schemata). For instance, the items of Davis and Jowett's (2013) CAAS, such as "I am concerned that my coach will find another athlete that he/she prefers" or " I often worry that my coach does not want to coach me anymore", supposed to evaluate athlete-coach attachment relationships might not be appropriate and sensible to be used in the assessment of child-parent attachment-related interactions within the context of sport. Plus, the item of West et al.'s (1998) AAQ (e.g. "I enjoy helping my parent whenever I can") supposed to assess children's attachment relationships with parents in general is also not suitable for the context of academics and sport because it does not sensibly describe child-parent attachment interactions in specific contexts, like sport or academics. Thus, in this study we do not favour directly borrowing (or revising) existing instruments to assess contextual attachment patterns within a particular child-parent relationship.

Furthermore, some cultural considerations with regard to attachment concepts also need to be noted here. For example, people's culturally ideal attachment characteristics are likely to be catalyzed by their beliefs of self-construal (i.e., independent or interdependent orientations) stemmed from underlying individualist or collectivistic value. More specifically, in adult romantic relationships Western people normally holding *independent* self-construal believe that the norms of proper behaviours and attitudes should maintain a certain balance between independence and obligation to partners, reasonable expectations of partners' supports, and a proper level of one's worth and esteem in the eyes of one's partner. These cultural-based values might contribute to the formation of a romantic couple's attachment-related beliefs of self and other (e.g. how to communicate their own needs and feelings, when and how to deal with their conflicts, how much support and response from each other is to be expected), which is also in line with the conceptualization of Western-based 'secure' attachment affect, cognition and behaviours (Wang & Mallinckrodt, 2006). However, the majority of Taiwanese people favouring the beliefs of *interdependent* self-construal are likely to exhibit emotionally restrained characteristics or more reserved norms in their interpersonal relationships, such as indirect communications; discouragement of overt expressing of personal emotion, feelings and thoughts; the need to seek approval and recognitions from others; worries about not belonging to social groups; and reluctance to express personal needs or ask for help from others, in order to maintain interpersonal harmony. These traditional Chinese (Taiwanese) cultural values might not fit in conceptually with Western-based secure

attachment characteristics. In simple terms, *culturally ideal attachment* is characterized as one's beliefs of an ideal emotionally and psychologically healthy person of one's own gender in one's culture within a particular attachment relationship (e.g. Wang & Mallinckrodt, 2006; Wang & Scalise, 2010; Wang & Song, 2010). For example, a behavioural indicator for securely attached Western adults in a Western-based scale (ECR-S, Brennan, Clark, & Shaver, 1998) such as "I tell my partner just about everything" seems to be a reasonable description of secure attachment representation within Western romantic relationships, but it can be deemed a representation of a quite immature and selfish burdening of one's partner with what should remain a private concern within Taiwanese culture (Wang & Mallinckrodt, 2006).

In addition, cognitive indicators for insecurely attached Western adults such as "I prefer not to show a partner how I feel deep down" describe exact and common Taiwanese cultural beliefs within romantic relationships; however, the higher scores in the Western-based ECR-S are likely to be over-pathologized as an intensively avoidant tendency in the referent relationship (Wang & Mallinckrodt, 2006). Similarly, the scores of Taiwanese adults in an cognitive indicator such as "I worry a fair amount about losing my partner" might be much higher than the scores of Western adults in the ECR-S as they fully reflect Taiwanese cultural values, such as maintenance of a close connection to families, interdependent relationships, and mutual obligation. Therefore, being seriously anxious about family issues is highly recognized and appreciated in the society (Wang & Mallinckrodt, 2006). Previous studies in cultural comparisons using Chinese-version attachment scales adapted from Western-based measures (i.e. ECR, Brennan et al., 1998; CRA, Roggman et al., 2001) in investigating child-parent attachment have also found that Taiwanese schoolchildren exhibited a more ambivalent/resistant and less secure exploration tendency than US children (e.g. Newland et al., 2010). Furthermore, Taiwanese adults with indigenous Chinese cultural backgrounds revealed higher levels of attachment anxiety (for men) and attachment avoidance (for women) than US adults (e.g. Wang & Mallinckrodt, 2006; Wang & Scalise, 2010). This is probably due to the fact that Taiwanese adults normally hold beliefs of *interdependent* self-construal, which means they are more likely to exhibit an emotional restrained tendency or more reserved norms in their close relationships. Specifically, *males* are more likely to seek approval and recognition from their partners as well as worry about being abandoned in their romantic relationships, and *females* exhibit straightforward communications, such as overt expressions of personal opinions and emotional needs to partners (e.g. Wang & Mallinckrodt, 2006; Wang & Scalise, 2010). We suspect that

children's attachment-related interactions with parents within the sport and academics contexts might also reflect some degree of similar Taiwanese-specific attachment attributes within the context of general interpersonal interactions. Therefore, although the majority of contemporary attachment instruments developed are based on Bowlby and Ainsworth's proposed three constructs of attachment (i.e. secure, anxious, avoidant), we are inclined to be open (but with reasonable consideration) in our assumption of the number and characteristics of attachment constructs for our proposed measurements of contextual parental attachment in this study.

Furthermore, to date, Taiwanese-based attachment measurements are still very rare, such as IPPA-C (Sun, 2004), ECR-C (Mallinckrodt & Wang, 2004), RSQ-C (Wang & Neville, 2006), and RAAS-C (Huang & Chen, 2011). Although RAAS-C has been well validated from RAAS (Collins, 1996), the factor structures were different from Collins' original version, and some of RAAS-C's items apparently could not be reworded to be suitable for describing child-parent attachment interactions in the contexts of sport and academics. Apart from that, to our knowledge, existing Chinese-version attachment instruments were all revised and validated from specific "Western-based" instruments. They might be not considered as well-validated measurements because most of them have only been validated for factorial composition, semantic equivalence, or internal reliability, but not tested for other relevant equivalence (e.g., scalar/metric, conceptual) across cultures. In light of aforementioned concerns, instead of validating specific Western-based attachment instruments, in this thesis we favour to develop and validate contextual parental attachment measures that are suitable for use in the contexts of sport and academics within Taiwanese culture.

Design

For the purpose of developing and validating contextual attachment instruments – the Traditional-Chinese version of attachment scales for sport (CAS-S) and academic (CAS-A) contexts, a series of procedures for creating rigorous self-report measures were conducted by the guidance of DeVellis (2012), Mclntyre and Miller (2007), and Hinkin (1995). Namely, nine stages composing of (1) identifying the constructs, (2) generating item pool, (3) the format of measure, (4) evaluating the content validity (i.e., expert panels' and target population's review of item pool), (5) sampling and administrating the survey, (6) item reduction, (7) extracting the latent factors, (8) testing the dimensionality, (9) testing the reliability and validity were administrated. In the following paragraph, eight steps were

addressed in three phases: Phase 1 focusing on item development included stage 1 to 3; Phase 2 aiming at scale development contained stage 4 to 7; Phase 3 focusing on scales evaluation included stage 8 and 9. Two cross-sectional studies were conducted, the tasks of phase 1 and 2 were processed in *study 1* and the tasks of phase 3 were processed in *study 2*.

Study 1

Phase 1 - Item generation and refinement

The initial generation of item pools was procced by selecting items from existing self-report attachment instruments that could reflect specific dimensions (i.e., secure/availability/autonomous, anxious/ambivalent/preoccupied, avoidant/dismissing) of child/adolescent-parent attachment within psychology relevant disciplines (e.g., educational, sport, social, personality, and developmental psychology). Noteworthily, there were three considerations in the priority of choosing assessments: (1) The Chinese-version of attachment instruments previously published in relevant literature with regard to child-parent relationships and close relationships were prior to retrieve, including IPPA-C (Sun, 2004), ECR-C (Mallinckrodt & Wang, 2004), RSQ-C (Wang & Neville, 2006), and RAAS-C (Huang & Chen, 2011); (2) Referring to a systematic review in current attachment measures (Ravitz et al., 2010), two well-validated instruments were further adopted (i.e., AAQ, West et al., 1998; VASQ, Bifulco et al., 2003); (3) Apart from the scales representing a person's *global* schema of attachment, attachment measures that could reflect one's *state* representations of attachment were also included (i.e., SAAM, Gillath et al., 2009). Totally, 7 specific scales (113 items) were retrieved for further examining if each of items could achieve three major criteria - (1) the item was clearly central to one of structural conceptualizations of attachment, (2) the item could be sensible and suitable for describing common scenarios of attachment-related interactions between children and parents within sport and academics, (3) the item could be applicable in Taiwanese culture.

In light of abovementioned criteria, the generated items were considered to be included or excluded from item pools by our research team. For example, we deleted the items such as "If someone tried to get close to me, I would try to keep my distance" and "Having people around me can be a nuisance" from both of sport and academic-version item pools as they do not sound sensible and interpretable to the circumstance happened in Taiwanese children's normal interactions with parents (neither in family lives nor sport/school lives). For example, these descriptions are seemingly against Taiwanese cultural beliefs in interpersonal relationships. That is, based on Confucian values, Taiwanese youths

are normally willing to accept their parents' advice, and more care about fulfilling parental expectations. After eliminating any repetitive and inappropriate items, each of items was modified to reflect the scenarios of parent-child interactions within the contexts of sport and academic. Specifically, we rewrote some items on the *academic-version* scale, like "I talk things over with my parent (reverse score)" was replaced with "I feel as though I can't talk my feelings about studying over with my parent". Items on the *sport-version* scale, like "I feel relaxed knowing that close others are there for me right now" was replaced by "When participating in sport I feel relaxed knowing that my parent is always there for me". Through these procedures, 46 items were yielded composing of 17 items, 13 items, and 16 items represented a secure/availability/autonomous, anxious/ambivalent/preoccupied, and avoidant/dismissing attachment style, respectively, on each of the item pools of the CAS-S and CAS-A.

Phase 2: Content Validity

The purposes of phase 2 was to (1) assess the adequacy of items in the domain of interest, (2) ensure the scale is parsimonious, (3) explore the number of latent constructs that fit the observed data. Firstly, an external panel of four academics with experiences conducting research in the fields of sport psychology, educational psychology, psychological measurement, and attachment theory was invited to validate the content (i.e., content and face validity), provide comments, and suggest alternative wordings. For example, some items (e.g., "I get annoyed when I feel my parent doesn't want to be emotional close to me in my school life") were excluded from item pools because they did not seemingly reflect cultural-sensible scenarios illustrating Taiwanese children's attachment interactions with parents in both of the contexts. Furthermore, some items were slightly reworded to make them more clear, concise, and reflective, such as "In sport, I felt I am able to share my feelings with my parent more" was replaced by "In sport, I wish I could share my feelings with my parent more".

Based on panel's feedback, revised pools of original English items were initially forward translated into Traditional-Chinese version by author and two English-Chinese bilinguals subsequently conducted backward translations and evaluated the equivalence of original and backward-translated versions respectively. Next, a second external review was conducted by a panel of three Taiwanese psychologists with fluent English, two primary school teachers, and two sports coaches to assess the clarity, applicability, and suitability of a Traditional-Chinese version of the CAS-S and CAS-A. At this stage, some items, such as

"When participating in sport, I feel I can trust my parent" and "I feel I can trust my parent in my school life" were further eliminated as some teachers and coaches suggested that they were seemingly more suitable for describing coach-athlete and teacher-student attachment relationship. Furthermore, due to the comprehension and reading ability of younger schoolchildren (9-10 years), some items were further reworded. The final phase of item refinement was to interview six children from different-age groups (i.e., aged 9, 13, and 15 years) to gauge whether youth participants could understand the questions and were able to answer them (Collins, 2003). Plus, a "think-aloud" procedure (Ericsson & Simon, 1998) was further employed to examine young participants' comprehension of the meaning of each item. For example, we asked youths "what you understood by this word/question?", "what you are thinking about when answering this question?" and "how would you explain this question to your peers?". Following these processes, final revised pools of 21 sport-specific items and 21 academic-specific items were developed.

Method

Phase 3 - Item reduction and extraction of factors

Participants

A sample of 164 youth athletes in Taiwan was recruited via convenient (i.e., participants were approached through school teachers and coaches known to the first author) and then purposive (i.e., youths were eligible to be selected if they fitted selection criteria) sampling to pilot versions of the context-specific child-parent attachment scales. Several criteria were applied in the selection of appropriate participants: (1) To ensure they could be considered as involved in a sporting context, youths had been committed to attending training, practice sessions and competitions for a given sport at least for one semester (normally 4-5 months), (2) A chosen parent/or primary caregiver was actively involved in his or her child's sport-related activities for at least one semester (normally 4-5 months), (3) The assigned parent/caregiver also needed to be involved in the child's academic-related life. Consent from parents and youths was signed and returned prior to survey completion.

For the pilot study, surveys and consent were obtained from three schools including youths from seven sports teams (i.e., basketball, baseball, table tennis, taekwondo, badminton, track and field, and dancing). Youth participants represented their sports at three levels including club (53%), county/district (30.4%), national (16.5%) levels. 28.7 % of youth athletes have involved in their current sport between six months and one year, 71.3% of them have participated in their sport above one year. One hundred and twenty-four surveys

were valid after screening out 26 for ineligible data (i.e., participants did not meet all of our selection criteria) and 14 invalid responses (i.e., fast and repeat responses – circling randomly or repeatedly on an answer rather than carefully selecting). This made for a 76% return rate (age range = 9 - 15 years; 72% boys, $M_{age} = 12.46 \pm 1.64$). Nine cases were identified as careless respondents and further deleted as there were more than 25% missing values found for these respondents. Furthermore, according to Tabachnick and Fidell's (2013) suggestions, the criterion of $p < .001$ with 21 degrees of freedom ($\chi^2 = 46.80$) was applied for investigating multivariate outliers with Mahalanobis distance. No further outliers among 115 cases were detected.

Measures

The Traditional-Chinese version of the Contextual Attachment Scale in Sport (CAS-S) and Academic (CAS-A) developed in Phase 1 and 2 were used for further examinations (e.g., item reduction and exploratory factor analysis). The version of CAS-S contained 21 items in total with 6 items were designed to measure youth's secure/autonomous/available attachment pattern (e.g., I feel secure and close to my parent in sport), 9 items to measure an anxious/ambivalent/preoccupied attachment pattern (e.g., I wish I could have my parent's unconditional support in my sport participation), and 6 items to measure an avoidant/dismissing attachment style (e.g., when participating in sport, I find it difficult to confide in my parent). Similarly, the version of CAS-A contained 21 items in total with 7 items were designed to evaluate a secure/autonomous/available attachment style (e.g., I feel like I can rely on my parent in my school life), 7 items to evaluate an anxious/ambivalent/preoccupied attachment style (e.g., I am not confident my parent understands my feelings about my schoolwork), and 7 items to evaluate an avoidant/dismissing attachment style (e.g., When doing my schoolwork, I have mixed feelings about being emotionally close to my parent). In both of scales, youth participants were asked to indicate how much they agree with each statement as it reflects your feelings in the context of sport and academics on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Furthermore, to prime participants to consider a given context when making their responses, instructions were also provided to trigger contextual attachment schema with the selected parent/caregiver. For example, the instructions for CAS-S at the beginning of questionnaire:

> The following statements ask you how you feel about the parent you have chosen (or significant other who is like your parent) who involved and affected you most *in the context of sport* over the past six months. The context could involve sports practice sessions, time before games, during games, after games, or any other sports-related interactions you feel you have with the selected parent. Please try to imagine yourself and your parent in the context of your sport participation when you respond to each statement. Remember that your parent/teacher/coach will never know how you responded to these questions. Please circle the number on the 1 (Disagree strongly) to 5 (Agree strongly) scale for each statement that best indicates how much you agree or disagree *in the context of sport*.

The instructions for CAS-A at the beginning of questionnaire:

> The following statements ask how you feel about the parent (or significant other who is like your parent) you have chosen who involved and affected you most in the context of academics and school. This context refers to schoolwork-related achievement. It might include how your parent feels about things that happen at school things that relate to your involvement in 'academic performance', 'tutoring courses', 'homework', and 'academic-related contests/events' (i.e., International Mathematical Olympiad, composition contests, English speech presentations, or parent-teacher conferences/meetings). Please try to imagine yourself and your parent in an academic or school-related context when you respond to each statement by indicating how much you agree or disagree with it in the context of academics and school. Remember that your parent will never know how you responded to these questions. Please circle the number on the 1-to-5 scale for each statement that best indicates how much you agree or disagree *in the context of academics*.

Procedures

After acquiring permission for data collection from schools and consent forms from parents and participants, each data collection session was confirmed with an appointed school staff member (i.e., teachers or coaches of sports clubs) in advance and surveys were administered by author. Youths were instructed to complete multi-section self-report measures in class or a quiet place in the school (without parents present) and were encouraged to raise any questions concerning difficult items to the researcher. They were

asked not to confer with peers and to be as honest as they could while responding. All participants were informed that their responses would be anonymous and confidential, and they could refuse or withdraw their participation at any time. The survey took no more than 15 min to complete. A small gift (either stationary or a sport-related accessory) was given to children who completed and returned the survey. Ethical approval was obtained from the researcher' institutional ethics committee.

Item reduction

In order to ensure that the generated items were parsimonious, functional, and internally consistent included in each of the separate sport and academic-version scales, a set of item analysis procedures (i.e., means, standard deviations, distribution, item discrimination index, inter-item correlation, corrected item-total correlation, and internal reliability) was initially employed for item reduction (Tabachnick & Fidell, 2013; Boateng et al., 2018). Specifically, items was considered to remove or retain based on the below criteria: (1) The mean values of each item on CAS-S and CAS-A should be close to the median value of each item; (2) The values of standard deviations (SD) of each item should be higher, at least greater than 0.75 is preferred; (3) the values of skewness and kurtosis for each item should be closer to zero. The absolute z-score of skew and *excess* kurtosis (obtained by subtracting 3 from the proper kurtosis) preferred to be lower than 3.29 (Kim, 2013); (4) Inter-item correlations should be between .20 to .70, item-total correlations should be greater than .30 (Kidder & Judd, 1986; Stanton, Sinar, Balzer, & Smith, 2002; Devellis, 2012). Items would be considered as poor quality if they failed to meet more than two criteria. As a result, 12 items in CAS-S and 7 items in CAS-A did not meet more than two criteria and were further deleted in this stage. Table 1 demonstrated descriptive statistics for the 21-item (initial) and 9-item (after item reduction) CAS-S. Table 2 demonstrated descriptive statistics for the 21-item (initial) and 14-item (after item reduction) CAS-A.

Exploratory Factor analysis (EFA)

For the purposes of further reducing items and determining the optimal number of factors (i.e., the dimensions of attachment) that fits a set of items, EFA was conducted to examine two-factor and three-factor solutions, which reflected the common dimensions in existing trait/global, state, and relational-specific attachment style instruments. We thought one-factor solution revealing a single (secure-insecure) bipolar dimension might not be possible for contextual attachment as supposed a person's attachment dispositions in

particular contexts would be represented by more diverse schemata illustrating one's context-specific attachment characteristics (e.g., emotions, feelings, behaviours, thoughts). A two-factor solution might be similar with the structure of trait-like or relational-specific attachment measures (e.g., ECR; Brennan et al., 1998; Wang & Neville, 2006; CAAS; Davis & Jowett, 2013), suggesting relatively uncorrelated approach of anxious and avoidant (although Davis and Jowett's CAAS revealed a positively moderate correlation in a sample of athletes). In light of those cultural concerns mentioned in chapter two, we also premised that a two-factor structure representing secure and insecure (including anxiety and avoidance) styles, or approach-related (including security and anxiety) and avoidance-related styles (e.g., VASQ; Bifulco et al., 2013) might be negatively correlated. Moreover, a three-factor structure (i.e., secure, anxious, and avoidant styles) similar to Gillath's state-based (SAAM, 2009), Davis and Jowett's relational-specific (CAAS, 2013), and Hazan and Shaver's trait-like (AAS, 1987) measures indicating negative correlations between secure and anxious styles, secure and avoidant styles, as well as avoidant and anxious styles (although Davis and Jowett's CAAS indicated a positively moderate correlation).

In accordance with common recommendations (e.g., Tabachnick & Fidell, 2013), EFA (SPSS version 23.0) was conducted using principal axis factoring extraction (PAF) with oblique (Delta 0) rotation as those premised factors were not expected to be necessarily orthogonal. Kaiser-Meyer-Olkin (KMO) (above .70) and Bartlett's test of sphericity ($p < .05$) were tested to evaluate the appropriateness of the analysis (i.e., the data did not violate statistical assumptions for EFA). The underlying structures of 9 (CAS-S) and 14 (CAS-A) items were evaluated by eigenvalues (above 1), scree plots, and the percentage of variance. Next, based on the results of inter-item correlations (between .20 to .70), item-total correlations (greater than .30), pattern coefficients (greater than .40), degree of cross-loading (no items with a loading above .30 on more than one factor), communities (each of items above .20) and internal reliability (Cronbach's $\alpha > .70$), items were considered to be retained or removed (Kidder & Judd, 1986; Stanton, Sinar, Balzer, & Smith, 2002; Devellis, 2012).

Results

In initial EFA for the *sport-version* scale, we did not fix the number of factors to be extracted. Results suggested the data was appropriate for EFA (KMO = .78; Bartlett's test = $\chi 2$ (374.72), $p < .001$). The Eigenvalues (and percentage of variance) showed three-factor solutions in turn were 3.15 (35.02%), 1.39 (15.49%), and 0.47 (5.25%). However, the scree

pattern illustrated that a two-factor solution seemed to be appropriate. Based on theoretical and empirical evidence in structures of attachment, both of two-factor and three-factor solutions were considered to be further tested. The results of the assigned three-factor solution demonstrated that only one items loaded on third factor (item 12 = .68), suggesting a doubleton or non-factor (Gorsuch, 1983). Besides, several items loaded on the factors below .40 or had cross-loadings above .30 on more than one factor, therefore, an assigned two-factor solution was further tested. The results of Eigenvalues (both factors were greater than 1) and scree patterns demonstrated a two-factor solution was more appropriate. Table 3 indicated factor/cross loadings, communities (h2), eigenvalues, percentage of variance, percentage of cumulative variance, and inter-correlation for initial 9-item CAS-S. A series of filtering steps were further conducted to eliminate items that failed to meet multiple criteria (i.e., communities, factor loadings, cross-loadings). Through these processes, two items revealed poor quality and further deleted resulting in a 7-item scale with 4 items on the first factor and 3 items on the second factor. Table 5 revealed factor/cross loadings, communities (h2), eigenvalues, percentage of variance, percentage of cumulative variance, inter-correlation, and Cronbach's α for final 7-item CAS-S. It can be seen that the attributions of items on the first factor represented a range of feelings and attitudes relating to a sense of parental rejections, inability to obtain parents' availability and responsiveness, and barriers to trust and open to parents in the context of sport, it was hence labelled as "insecure-avoidant" dimension. The attributions of items on the second factor represented a sense of faith on parents' responsiveness and support, and comfort with intimacy and interdependence in the context of sport, it was therefore labelled as "secure" dimension.

In initial EFA for the *academic-version* scale, the number of factors to extract was also unrestrained. Results suggested the data was appropriate for EFA (KMO = .83; Bartlett's test = $\chi 2$ (546.03), $p < .001$). The Eigenvalues (and percentage of variance) showed four-factor solutions in turn were 4.22 (30.14%), 1.44 (10.31%), 0.75 (5.34%), and 0.44 (3.16%). However, the Scree patterns indicated that either two-factor or three-factor solutions seemed to be acceptable. In light of theoretical and empirical evidence in structures of attachment, both of two-factor and three-factor solutions were considered to be further examined. Results revealed that the Eigenvalues of the assigned three-factor solution in turn were 4.19 (30%), 1.42 (10.14%), and 0.72 (5.17%), indicating a two-factor solution would be more appropriate. Besides, only two items loaded on third factor (item 5 = .59 and item 6 = .48), suggesting a doubleton or non-factor (Gorsuch, 1983) and both items reflecting anxious attachment

attributes should be retained on the first factor. Besides, several items loaded on the factors below .40 or had cross-loadings above .30 on more than one factor, therefore, a two-factor solution was further tested. The results of Eigenvalues (both factors were greater than 1) and scree patterns demonstrated an assigned two-factor solution was more appropriate. Table 4 indicated factor/cross loadings, communities (h2), eigenvalues, percentage of variance, percentage of cumulative variance, and inter-correlation for initial 14-item CAS-A. A series of filtering steps were further proceeded to eliminate items that failed to meet multiple criteria (i.e., communities, factor loadings, cross-loadings). Through these processes, three items revealed poor quality and further deleted, resulting in a 11-item scale with 7 items on the first factor and 4 items on the second factor. Table 5 revealed factor/cross loadings, communities (h2), eigenvalues, percentage of variance, percentage of cumulative variance, inter-correlation, and Cronbach's α for final 11-item CAS-A. It can be seen that the attributions of items on the first factor represented a sense of faith on parents' responsiveness, comfort with intimacy and interdependence, insecurity about one's own worth and abilities, and extreme desires for closeness, dependence, and support in the context of academics, it was hence labelled as "approach-related". Moreover, the attributions of items on the second factor represented a range of feelings and attitudes relating to inability to obtain parents' responsiveness, negatively affective responses toward parents' unavailability, and a tendency to down-regulate one's own emotions in the context of academics, it was therefore labelled as "insecure" dimension.

Table 1. Descriptive statistics for the initial sport version of the 21-item Contextual attachment Scale (CAS-S)

Items	M	SD	Skewness	Kurtosis
01. In sport, I feel as though my parent pushes me away when I need to share my feelings.*	2.10	1.13	0.82	0.08
02. When participating in sport I am not confident my parent understands what I need.	2.72	1.30	0.12	-1.18
03. In sport, my parent makes me feel as though I can't talk about my feelings with her/him.*	2.30	1.20	0.57	-0.64
04. I feel as though I can't talk my sport-related feelings over with my parent.*	2.84	1.25	0.06	-0.99
05. I get angry because my parent always ignores my feelings when I need their help in sport.*	2.25	1.15	0.64	-0.32
06. I get annoyed at my parent because it seems I have to demand his/her support in my sport participation.	2.70	1.18	0.21	-0.77
07. I get annoyed at my parent because he/she doesn't seem to know what I need in sport.	3.86	1.14	-0.96	0.47
08. In sport, I get annoyed when I feel my parent doesn't want to be emotionally close to me.*	3.93	1.13	-1.00	0.35
09. I wish my parent made me feel more cared for in sport.	4.04	1.03	-1.12	0.97
10. In sport, I wish I could share my feelings with my parent more.	3.61	1.19	-0.66	-0.31
11. I wish my parent gave me more emotional support in sport.	3.80	1.10	-0.71	0.08
12. I wish I could have my parent's unconditional support in my sport participation.	2.87	1.30	0.08	-1.05
13. I want to talk more with my parent about things that are worrying me in sport.	3.40	1.28	-0.30	-0.89
14. When participating in sport, I feel like I can rely on my parent to care and support me.	3.27	1.25	-0.28	-0.84
15. I feel secure and close to my parent in sport.*	3.69	1.09	-0.60	-0.18
16. If something went wrong in sport, I feel like I could depend on my parent to be there.	3.68	1.13	-0.68	-0.08
17. When participating in sport, I feel like my parent cares about me.*	2.43	1.16	0.28	-0.80
18. When participating in sport, I feel relaxed knowing that my parent is always there for me.*	2.41	1.15	0.44	-0.57
19. When participating in sport, it's important to have my parent around me.	2.35	1.23	0.66	-0.45
20. When participating in sport, I often get into arguments with my parent.	3.60	1.22	-0.33	-0.58
21. When participating in sport, I find it difficult to confide in my parent.*	2.62	1.31	0.24	-1.04

Note: *items were retained for EFA after item reduction analysis. M = Mean, SD = Standard Deviation.

Table 2. Descriptive statistics for the initial academic version of the 21-item Contextual attachment Scale (CAS-A)

Items	M	SD	Skewness	Kurtosis
01. I feel as though my parent pushes me away when I need to share my feelings about my school life.	2.10	1.13	0.82	0.08
02. I am not confident my parent understands my feelings about schoolwork.	2.72	1.30	0.12	-1.18
03. I feel as though I cannot talk my feelings about studying over with my parent.*	2.30	1.20	0.57	-0.64
04. I get angry because my parent ignores my feelings when I need his/her support in my school life.*	2.84	1.25	0.06	-0.99
05. I get annoyed at my parent because it seems I have to demand his/her care and support in my schoolwork.*	2.25	1.15	0.64	-0.32
06. I get annoyed at my parent because he/she doesn't understand my feelings toward my studies.*	2.70	1.18	0.21	-0.77
07. I wish my parent made me feel like I am loved when we talk about my schoolwork.	3.86	1.14	-0.96	0.47
08. I wish I felt I was able to share my feelings with my parent about my school life.*	3.93	1.13	-1.00	0.35
09. I wish my parent gave me more emotional support in my school-related activities.*	4.04	1.03	-1.12	0.97
10. I want to talk more with my parent about things that are worrying me in my school life.*	3.61	1.19	-0.66	-0.31
11. When participating in my school-related activities, I can feel my parent's love.*	3.80	1.10	-0.71	0.08
12. I feel like I can rely on my parent in my school life.	2.87	1.30	0.08	-1.05
13. I feel secure and close to my parent in my school life.*	3.40	1.28	-0.30	-0.89
14. When participating in my school-related activities, if something went wrong I feel like I could depend on my parent.	3.27	1.25	-0.28	-0.84
15. I feel like my parent cares about my school life.*	3.69	1.09	-0.60	-0.18
16. When participating in my school-related activities, I feel relaxed knowing that my parent is always there for me.*	3.68	1.13	-0.68	-0.08
17. When participating school-related activities, the idea of being emotionally close to my parent makes me nervous.*	2.43	1.16	0.28	-0.80
18. When doing my schoolwork, I have mixed feelings about being emotionally close to my parent.*	2.41	1.15	0.44	-0.57
19. I often get into arguments with my parent when we talk about my schoolwork.*	2.35	1.23	0.66	-0.45
20. It is important to have my parent around me on my school-related activities.	3.60	1.22	-0.33	-0.58
21. I find it difficult to confide in my parent about my school life.	2.62	1.31	0.24	-1.04

Note: *items were retained for EFA after item reduction analysis. M = Mean, SD = Standard Deviation.

Table 3. Factor/cross loadings, communities (h^2), eigenvalues, percentage of variance, and inter-correlation for initial 9-item CAS-S (EFA)

Items (CAS-S)	F1	F2	h^2
01. In sport, I feel as though my parent pushes me away when I need to share my feelings.	**.74**	-.10	.57
03. In sport, my parent makes me feel as though I can't talk about my feelings with her/him.	**.80**	.01	.63
04. I feel as though I can't talk my sport-related feelings over with my parent.	**.86**	-.01	.74
08. In sport, I get annoyed when I feel my parent doesn't want to be emotionally close to me.	**.26**	.25	.11
21. When participating in sport, I find it difficult to confide in my parent.	**.60**	-.17	.41
12. I wish I could have my parent's unconditional support in my sport participation.	.03	**.26**	.07
15. I feel secure and close to my parent in sport.	-.02	**.85**	.73
17. When participating in sport, I feel like my parent cares about me.	-.28	**.64**	.54
18. When participating in sport, I feel relaxed knowing that my parent is always there for me.	-.30	**.75**	.71
Eigenvalue	3.14	1.37	
Percentage of variance	34.84	15.23	
Percentage of cumulative variance	-	50.06	
Inter-correlation	-	-.14	

Note. Bold and plain typeface denote loadings on expected factors and cross-loadings.

Table 4. Factor/cross loadings, communities (h^2), eigenvalues, percentage of variance, and inter-correlation for initial 14-item CAS-A (EFA)

Items (CAS-A)	F1	F2	h^2
08. I wish I felt I was able to share my feelings with my parent about my school life.	**.78**	.06	.59
09. I wish my parent gave me more emotional support in my school-related activities.	**.66**	-.01	.43
10. I want to talk more with my parent about things that are worrying me in my school life.	**.62**	-.02	.39
11. When participating in my school-related activities, I can feel my parent's love.	**.85**	.01	.71
13. I feel secure and close to my parent in my school life.	**.61**	.03	.36
15. I feel like my parent cares about my school life.	**.76**	-.03	.59
16. When participating in my school-related activities, I feel relaxed knowing that my parent is always there for me.	**.71**	-.01	.51
03. I feel as though I cannot talk my feelings about studying over with my parent.	-.34	**.51**	.46
04. I get angry because my parent ignores my feelings when I need his/her support in my school life.	.11	**.38**	.13
05. I get annoyed at my parent because it seems I have to demand his/her care and support in my schoolwork.	.12	**.53**	.26
06. I get annoyed at my parent because he/she doesn't understand my feelings toward my studies.	-.10	**.25**	.08
17. When participating school-related activities, the idea of being emotionally close to my parent makes me nervous.	.01	**.52**	.27
18. When doing my schoolwork, I have mixed feelings about being emotionally close to my parent.	-.06	**.59**	.37
19. I often get into arguments with my parent when we talk about my schoolwork.	-.27	**.44**	.32
Eigenvalue	4.15	1.33	
Percentage of variance	29.62	9.47	
Percentage of cumulative variance	-	39.09	
Inter-correlation	-	-.25	

Note. Bold and plain typeface denote loadings on expected factors and cross-loadings.

Table 5. Factor/cross loadings, communities (h^2), eigenvalues, percentage of variance, Cronbach's α, and inter-correlation for the final 7-item CAS-S and 11-item CAS-A (EFA)

Items (CAS-S)	**F1**	**F2**	h^2
01. In sport, I feel as though my parent pushes me away when I need to share my feelings.	**.71**	-.08	.55
03. In sport, my parent makes me feel as though I can't talk about my feelings with her/him.	**.81**	.07	.62
04. I feel as though I can't talk my sport-related feelings over with my parent.	**.90**	.09	.79
21. When participating in sport, I find it difficult to confide in my parent.	**.56**	-.16	.42
15. I feel secure and close to my parent in sport.	.80	**-.13**	.68
17. When participating in sport, I feel like my parent cares about me.	.64	**-.17**	.52
18. When participating in sport, I feel relaxed knowing that my parent is always there for me.	.80	**-.13**	.74
Eigenvalue	3.12	1.20	
Percentage of variance	44.53	17.19	
Percentage of cumulative variance	-	61.72	
Inter-correlation of factors	-	-.39	
Cronbach's α	.84	.83	
Items (CAS-A)			
08. I wish I felt I was able to share my feelings with my parent about my school life.	**.78**	.06	.59
09. I wish my parent gave me more emotional support in my school-related activities.	**.66**	-.01	.43
10. I want to talk more with my parent about things that are worrying me in my school life.	**.62**	-.02	.39
11. When participating in my school-related activities, I can feel my parent's love.	**.85**	.01	.71
13. I feel secure and close to my parent in my school life.	**.61**	.03	.36
15. I feel like my parent cares about my school life.	**.76**	-.03	.59
16. When participating in my school-related activities, I feel relaxed knowing that my parent is always there for me.	**.71**	-.01	.51
03. I feel as though I cannot talk my feelings about studying over with my parent.	-.30	**.51**	.46
17. When participating school-related activities, the idea of being emotionally close to my parent makes me nervous.	.01	**.52**	.27
18. When doing my schoolwork, I have mixed feelings about being emotionally close to my parent.	-.06	**.59**	.37
19. I often get into arguments with my parent when we talk about my schoolwork.	-.27	**.44**	.32
Eigenvalue	4.09	1.14	
Percentage of variance	37.21	10.33	
Percentage of cumulative variance	-	47.54	
Inter-correlation of factors	-	-.34	
Cronbach's α	.87	.70	

Note. Bold and plain typeface denote loadings on expected factors and cross-loadings.

Study 2

Phase 4: Reliability, construct and criterion validity

Participants

A sample of 275 youth athletes in Taiwan were recruited during the second semester of the school year and/or summer training sessions. The period of data collection for study two was approximately four months (from May to August). The same criteria as the pilot study were also applied for this study. After screening out 19 ineligible cases and invalid responses (i.e., fast and repeat responses), 256 valid surveys (a 93% return rate) with signed consent were secured from 17 schools and 21 different sports clubs (age range = 9 – 17 years; 62% boys, M_{age} = 13.74±2.63). Youth participants represented their sports at four levels including club (14.5%), county/district (28.5%), national (53.1%), and international (3.9%) levels. 26.6 % of youth athletes have involved in their current sport between six months and one year, 73.4% of them have participated in their sport above one year. Youths reported spending a mean number of 10.48hr (SD = 6.03) in involving sport-related activities (e.g., training, competitions) per week during term time and 17.24hr (SD = 10.53) per week during off-term time. Around 10% of parents have involved in their children's sport as a coach (8.6%) or parents had previously engaged in the same sport (as athletes) as their children's current sport (11.7%). 16.4% of youth athletes indicated they have won personal prize money in their current sport. According to Tabachnick and Fidell's (2013) suggestions, the criterion of $p < .001$ with degrees of freedom was applied for investigating multivariate outliers with Mahalanobis distance. No further outliers among 256 cases were detected. Participants were recruited to achieve a balance between rural and urban areas and between seven major cities in Taiwan.

Procedures

After acquiring permission for data collection from schools and consent forms from parents and participants, each data collection session was confirmed with an appointed school staff member (i.e., teachers or coaches of sports clubs) in advance and surveys were administered by the researcher. Youths were instructed to complete multi-section self-report measures in class or a quiet place in the school (without parents present) and were encouraged to raise any questions concerning difficult items to the researcher. They were asked not to confer with peers and to be as honest as they could while responding. All participants were informed that their responses would be anonymous and confidential, and

they could refuse or withdraw their participation at any time. The survey took no more than 30 min to complete. A small gift was given to children who completed and returned the survey.

Measures

Contextual child-parent attachment

The Traditional-Chinese version of the Contextual Attachment Scale in Sport (CAS-S) and Academic (CAS-A) developed and tested in Phase 1 and 2 were employed for further confirming factor structures. The CAS-S contained 7 items in total with 3 items were designed to measure youth's *secure* attachment and 4 items to measure *insecure-avoidant* attachment. The CAS-A contained 11 items in total with 7 items were designed to evaluate an *approach-related* attachment style and 4 items to measure an *insecure* attachment (items of CAS-S and CAS-A refer to Table 5). In both scales, youth participants were asked to indicate how much they agree with each statement as it reflects your feelings in the context of sport and academics on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Contextual psychological need satisfaction and frustration

Youth participants' perceptions of need satisfaction and frustration *in the contexts of sport and academics* were measured with an adapted (Simplified-Chinese) version of the Basic Psychological Need Satisfaction and Frustration Scale (BPNSF; Chen et al., 2015). BPNSF is a 24-item self-report questionnaire consisting of six four-item subscales (autonomy satisfaction, autonomy frustration, competence satisfaction, competence frustration, relatedness satisfaction, relatedness frustration). Considering the differences in word usage between Taiwan and Mainland China and the readability for nine-year-old youth athletes (all participants in Chen and colleagues' study were between age 17-18), we slightly reworded the items in the Traditional-Chinese version in accordance with common Taiwanese expression. All items were then reviewed by a group of psychologists, school teachers/coaches, and younger athletes to refine some difficult items. Youth participants responded to each of items on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Total sport-specific and academic-specific BPNSF scores were calculated by averaging the sum of the subscale items. The Cronbach's α values for youths' need

satisfaction and need frustration in the context of sport-specific (.89 and .83) and academic-specific (.90 and .85) contexts, were internally consistent.

Data Analysis

The same versions of the CAS-S and CAS-A retained from the EFA in study 1 were used in study 2. Confirmatory factor analysis (CFA) was conducted to further ensure the factor structures explored in study 1. CFAs were performed using IBM AMOS (version 23.0) with robust maximum likelihood estimation to evaluate the fit of a two-factor (*secure* and *insecure-avoidant* styles) model with the same set of seven (for CAS-S) items and a two-factor (*approach-related* and *insecure* styles) model with the same set of eleven (for CAS-A) items. The adequacy of the measurement and structural models were evaluated by several goodness of fit indices recommended by Hu and Bentler (1999), Marsh, Hau, and Wen (2004) and Marsh (2007). A non-statistically significant chi-square (χ^2) value ($p > .05$) and NC (χ^2 / df) between 1 to 3 demonstrated a good model fit. The goodness-of-fit index (GFI), comparative fit index (CFI), relative fit index (RFI), and non-normed fit index (NNFI) greater than 0.90, and the root mean square error of approximation (RMSEA) and the standardized root-mean-square residual (SRMR) less than 0.8 indicated the models had an adequate model fit. Besides, due to theoretical and empirical links between attachment styles and basic psychological needs, the criterion (predictive) validity of CAS-S and CAS-A were evaluated by using regression analyses to examine the correlations between (1) the subscales of CAS-S and sport-specific need satisfaction and frustration, and (2) the subscales of CAS-A and academic-specific need satisfaction and frustration.

Results

Confirmatory Factor Analysis

After screening for normality and linearity to confirm that there were no discrepancies (the values of skewness and kurtosis within or close to the range of ± 1.0 from zero) and all observed variables exhibited linear relationships (Tabachnick & Fidell, 2013). Table 6 demonstrates the descriptive statistics for the final 7-item and 11-item CAS-S and CAS-A. The results of CFA indicated that the initial pool of 7 items, representing 3 *secure* items and 4 *insecure-avoidant* items in the sport-version scale, satisfactorily meet the recommended cut-off points of the goodness of fit indices: $\chi^2 = 24.90$ ($p < .05$), NC (χ^2 / df) = 1.92, NFI = 0.96, CFI = 0.98, IFI = 0.98, RFI = 0.93, SRMR = 0.04, RMSEA = 0.06. All items loaded on their pertaining factors were above .40. Furthermore, in the academic-version scale, the

results of CFA revealed that the initial pool of 11 items, representing 7 *approach-related* items and 4 *insecure* items, had a poor model fit: $\chi^2 = 194$ ($p < .05$), NC (χ^2 / df) = 4.53, SRMR = .08, NFI = .81, CFI = .85, IFI = .85, RFI = .76, RMSEA = .12. Referring to the factor loadings and the covariance between the items in modification index (MI), three *approach-related* items were suggested to be removed in order to achieve a satisfactory model fit. A pool of 8 items including 4 *secure* items and 4 *insecure* items were then tested in another CFA, resulting in a good model fit: $\chi^2 = 34.77$ ($p < .05$), NC (χ^2 / df) = 1.93, SRMR = .04, NFI = .95, CFI = .98, IFI = .98, RFI = .93, RMSEA = .06. Table 7 demonstrates the factor/cross loadings and error variance for the final 7-item CAS-S and 8 item CAS-A. After deleting three items reflecting anxious attachment attributes from CAS-A, it can be seen that the attributions of items on the second factor represented a sense of faith on parents' responsiveness, comfort with intimacy and interdependence in the context of academics, it was therefore labelled as "secure" dimension.

Convergent Validity

Referring to researchers' suggestions (e.g., Li & Hammer, 1996), convergent validity was employed to evaluate the extent of each item was substantially loaded on the pertaining factor in the separate of sport-version and academic-version scales. For the sport-version scale, the factor loadings ranged from .58 to .79 (M = .69) in the attachment subdimension of *secure* and ranged from .63 to .76. (M = .70) in the subdimension of *insecure-avoidant*. Plus, the squared multiple correlation coefficients of each item (without measurement error) on each of attachment subdimensions provided further evidence for convergent validity (Bollen, 1989). Results revealed that the coefficient of each item ranged from .40 to .58 (M = .49) on the *secure* dimension and ranged from .34 to .63 (M = .49) on the *insecure-avoidant* dimension, showing CAS-S had a good convergent validity. For the academic-version scale, the factor loadings ranged from .42 to .69 (M = .56) in the attachment subdimension of *secure* and ranged from .67 to .87. (M = .77) in the subdimension of *insecure*. Also, the squared multiple correlation coefficients of each item (without measurement error) on each of attachment subdimensions provided further information for convergent validity (Bollen, 1989). Results revealed that the coefficient of each item ranged from .45 to .75 (M = .60) fo*r* the *secure* dimension and ranged from .18 to .47 (M = .33) on the *insecure* dimension, indicating CAS-A had a good convergent validity.

Discriminant Validity

Referring to the suggestions of the procedures for validating scales (e.g., Li & Hammer, 1996), the factor correlations in each of the separate sport-version and academic-version scales were tested to evaluate the extent of the uniqueness between subscales in each of CAS-S and CAS-A. Results demonstrated the factor correlations without measurement error (corrected Pearson's correlations) had inversely moderate correlations between the dimensions of *secure* and *insecure-avoidance* in the sport-version scale ($r = -.50$) and the dimensions of *secure* and *insecure* in the academic-version scale ($r = -.55$). These findings suggested that the conceptualization of sport-specific/academic-specific parental attachment could be considered as two dimensions.

Criterion (Predictive) Validity

The predictive validity of CAS-S and CAS-A in this study were evaluated by using regression analyses to examine the correlations between (1) the subscales (i.e., sport security and insecure-avoidance) of CAS-S and sport-specific need satisfaction and need frustration, and (2) the subscales (i.e., academic security and insecurity) of CAS-A and academic-specific need satisfaction and need frustration. Results demonstrated that the subdimensions of attachment in sport were significantly associated with youth's perceptions of sport-specific need satisfaction ($R^2 = .21$; $p < .001$) and need frustration ($R^2 = .37$; $p < .001$). Specifically, perceived sport-specific satisfaction could be accounted for by its predictor of sport-specific security ($\beta = .02$, $p < .001$), but not sport-specific insecurity ($\beta = -.04$, $p = .30$). Perceived sport-specific frustration could be accounted for by both of its predictors of sport-specific insecurity ($\beta = .28$, $p < .001$) and security ($\beta = -.09$, $p < .05$). Moreover, the subdimensions of attachment in academics were significantly associated with youth's perceptions of academic-specific need satisfaction ($R^2 = .35$; $p < .001$) and need frustration ($R^2 = .37$; $p < .001$). That is, perceived academic-specific satisfaction could be accounted for by both of its predictors of academic-specific security ($\beta = .43$, $p < .001$) and insecurity ($\beta = -.17$, $p < .001$). Similarly, perceived academic-specific frustration could also be accounted for by both of its predictors of academic-specific insecurity ($\beta = .42$, $p < .001$) and security ($\beta = -.16$, $p < .001$). Overall, results indicated that CAS-S and CAS-A had acceptable predictive validity. Total CAS-S and CAS-A scores were calculated by averaging the sum of items in each of the separate subscales (security and insecure-avoidance/insecurity).

Table 6. Descriptive statistics for the final 7-item and 11-item CAS-S and CAS-A (CFA)

Items (CAS-S)	**M**	**SD**	**Skewness**	**Kurtosis**
01. In sport, I feel as though my parent pushes me away when I need to share my feelings.	1.95	1.02	0.92	0.23
02. In sport, my parent makes me feel as though I can't talk about my feelings with her/him.	2.12	1.11	0.81	-0.20
03. I feel as though I can't talk my sport-related feelings over with my parent.	2.04	1.05	0.84	-0.04
04. I feel secure and close to my parent in sport.	3.94	0.89	-0.65	0.25
05. When participating in sport, I feel like my parent cares about me.	4.13	0.86	-0.91	0.68
06. When participating in sport, I feel relaxed knowing that my parent is always there for me.	3.85	1.01	-0.54	-0.41
07. When participating in sport, I find it difficult to confide in my parent.	2.20	1.07	0.60	-0.34
Items (CAS-A)				
01. I wish I felt I was able to share my feelings with my parent about my school life.	2.21	1.05	0.58	-0.36
02. I wish my parent gave me more emotional support in my school-related activities.	3.87	0.94	-0.63	0.24
03. I want to talk more with my parent about things that are worrying me in my school life.	4.07	0.84	-0.82	0.94
04. When participating in my school-related activities, I can feel my parent's love.	3.73	0.93	-0.37	-0.03
05. I feel secure and close to my parent in my school life.	3.89	0.86	-0.61	0.24
06. I feel like my parent cares about my school life.	3.84	0.91	-0.66	0.45
07. When participating in my school-related activities, I feel relaxed knowing that my parent is always there for me.	4.02	0.84	-0.57	-0.02
08. I feel as though I cannot talk my feelings about studying over with my parent.	3.89	0.94	-0.55	-0.02
09. When participating school-related activities, the idea of being emotionally close to my parent makes me nervous.	2.32	1.08	0.56	-0.21
10. When doing my schoolwork, I have mixed feelings about being emotionally close to my parent.	2.25	1.06	0.58	-0.18
11. I often get into arguments with my parent when we talk about my schoolwork.	2.13	1.08	0.67	-0.32

Table 7. Factor/cross loadings and error variance (E.V.) for the final 7-item CAS-S and 8 item CAS-A (CFA)

Items (CAS-S)	F1	E.V.	F2	E.V.
01. In sport, I feel as though my parent pushes me away when I need to share my feelings.	.67	.57		
02. In sport, my parent makes me feel as though I can't talk about my feelings with her/him.	.79	.47		
03. I feel as though I can't talk my sport-related feelings over with my parent.	.79	.41		
06. When participating in sport, I find it difficult to confide in my parent.	.63	.61		
07. I feel secure and close to my parent in sport.			.58	.75
04. When participating in sport, I feel like my parent cares about me.			.73	.37
05. When participating in sport, I feel relaxed knowing that my parent is always there for me.			.76	.31
Items (CAS-A)	**F1**	**E.V.**	**F2**	**E.V.**
08. I feel as though I cannot talk my feelings about studying over with my parent.	.69	.58		
09. When participating school-related activities, the idea of being emotionally close to my parent makes me nervous.	.61	.73		
10. When doing my schoolwork, I have mixed feelings about being emotionally close to my parent.	.42	.92		
11. I often get into arguments with my parent when we talk about my schoolwork.	.59	.76		
04. When participating in my school-related activities, I can feel my parent's love.			.81	.26
05. I feel secure and close to my parent in my school life.			.87	.21
06. I feel like my parent cares about my school life.			.74	.32
07. When participating in my school-related activities, I feel relaxed knowing that my parent is always there for me.			.67	.48

Note. F1 = Attachment insecure-avoidance/insecurity, F2 = Attachment security.

Discussion

The purpose of this project was to develop and validate contextual attachment instruments – the traditional-Chinese version of attachment scales for sport (CAS-S) and academic (CAS-A) contexts. A series of procedures (e.g., DeVellis, 2012; Mclntyre & Miller, 2007; Hinkin, 1995) for creating rigorous self-report measures was employed in our two cross-sectional studies including item development, scales development, and scales evaluation. Although the generations of items and the constructs of attachment in our proposed CAS-S and CAS-A were initially based on Western-based constructs and existing attachment relevant measurements, but we did seriously take cultural differences into considerations throughout the procedures of scale validation. Initially, the results of EFA identified two-factor solutions characterizing *secure* and *insecure-avoidant* attachment patterns which negatively correlated in CAS-S. Similarly, in CAS-A two-factor solutions characterizing *approach-related* and *insecure* attachment styles which negatively correlated were initially identified in EFA, but in CFA the factor of "approach-related" was re-labeled as "secure" due to the deletion of three items describing anxious attachment attributes. Furthermore, the results of CFA (construct validity) and other relevant tests (i.e., convergent, discriminant, criterion validity) evidenced that both of CAS-S and CAS-A are well-validated measurements that could provide future research a suitable cultural-based assessment to investigate parental attachment in the contexts of sport and academics within Taiwanese (or Asian) culture. Nevertheless, the attachment constructs of both CASs are seemingly different from existing Western-based trait/state/relational-specific instruments – and this issue is worth to be further discussed from different angles.

More specifically, CAS-A is composed of two dimensions of attachment – security and insecurity. It is interesting to note, the dimension of *insecurity* represented a range of feelings and attitudes regarding inability to obtain parents' responsiveness, negative affective responses toward parents' unavailability, a relatively low tolerance for intimacy, and a tendency to down-regulate one's own emotions in the context of academics. This is inconsistent with mainstream (western-based) attachment instruments that have distinguishable attachment structures between the dimensions of anxiety and avoidance (e.g., ECR-R; Fraley et al., 2000). For example, most of existing Western-based attachment assessments (apart from VASQ; Bifulco et al., 2003) used to examine one's attachment relationships with parents/close partners in the contexts of academics/education/school, such as CATSBS (including three dimensions - availability, acceptance, and rejection; Al-Yagon & Mikulinver, 2006), CRA (including three dimensions - avoidance, ambivalence, and secure

exploration; Roggman et al., 2001), ECR-R (including two dimensions - anxiety and avoidance; Fraley et al., 2000). Nevertheless, the structures of CAS-A and the attributes of the dimensions seemed in line with Taiwanese beliefs of interdependent self-construct in close relationships as well as parenting beliefs and practices in academics. Specifically, it has been evidenced that Taiwanese/Asian people exhibited higher attachment *anxiety* and *avoidance* as well as lower *security* in close relationships than Western people do (e.g., Newland et al., 2010; Wang & Scalise, 2010; Wang & Mallinckrodt, 2006). These Taiwanese culturally ideal attachment characteristics could be as a result of their beliefs of interdependent self-construct which is largely embedded on cultural values of collectivism. That is to say, Taiwanese people holding this type of self-construal are more likely to exhibit emotionally restrained characteristics or more reserved norms in their interpersonal relationships (e.g., indirect communications, discouragement of overtly expressing personal affections and thoughts, desires to seek approval and recognitions from others, worries about not belonging to social groups, reluctance to express personal needs or ask for help from others in order to maintain interpersonal harmony) (Markus & Kitayama, 1991; Triandis, 1996).

We suspect that these beliefs of interdependent self-construal are likely to be salient particularly within children's academic lives as Taiwanese-based parenting norms regarding schoolchildren's academics dramatically affected by the Confucian belief that emphasizes the importance of being well educated in order to attain higher social status in the future (e.g., Chen & Uttal, 1988). Therefore, parents might set high standards for children's academic performance and also invest considerable time, effort, and resource in their children's education in order to ensure their academic success (e.g., Braxton, 1999; Chao, 1996; Kim, 2002). Taiwanese pupils are more willing to accept their parents' advice and care about fulfilling parental expectations in academics domain because actualizing Confucian practices, such as performing filial piety (e.g., a sense of obligation to repay or honor their parents' sacrifice, emotional support, or material investment) and obedience to parents, might drive schoolchildren's willingness and motivations to achieve academic excellence (e.g., Mordkowitz & Ginsburg, 1987; Hau & Salili, 1996). We thought these social and personal factors (i.e., the Confucian values in education, parental beliefs and behaviours in children's academics, and children's exercise of filial piety) are likely to result in Taiwanese pupils' perceived higher attachment anxiety and avoidance within academics (e.g., worries about not being recognized and appreciated if they cannot meet parents' expectations, reluctance to express personal feelings, thoughts, or needs to parents in order to maintain relational

harmony). Perhaps both of anxious and avoidant attachment characteristics reflecting the beliefs of interdependent self-construct cannot be distinguished by Taiwanese children – and this is why items representing the dimensions of anxiety and avoidance loaded on the same factor (labelled as "insecurity") in both of EFA and CFA.

Differently, CAS-S is composed of two dimensions of attachment (i.e., secure and insecure-avoidant styles) which is also not consistent with the majority of attachment-related measurements. For instance, existing Western-based assessments employed to investigate one's attachment relationships with parents/coaches/close partners in the contexts of *sport/PA*, such as IPPA-R (including three subscales - communication, trust, and alienation; Zhang et al., 2011; Gullone & Robinson, 2005), AAQ (including three dimensions - angry distress, availability, and goal-corrected partnership; West et al., 1998), and ECR-S (including two dimensions - anxious and avoidant; Wei et al., 2007). Furthermore, in the context of athlete-coach relationships, CAAS (Davis & Jowett, 2013) is composed of two dimensions (i.e., anxious and avoidant) or three dimensions (i.e., secure, anxious and avoidant) of attachment. In light of several cultural concerns aforementioned, we had considered several possible attachment constructs for our proposed CASs, such as two-dimension (e.g., anxiety and avoidance, security and insecurity, approach-related and avoidance) and three-dimension (e.g., security, anxiety, and avoidance) structures. However, CAS-S revealed different attachment constructs from most of previous attachment instruments, except for VASQ including two dimensions of attachment (i.e., proximity and insecurity) (Bifulco et al., 2003). We also suspect this might be due to specific parenting beliefs and practices within Taiwanese culture. That is to say, parents might adopt different parenting beliefs and behaviours in the context of sport. For example, parents might have less value (e.g., believe sport is not helpful for children's future success in society) or different value (e.g., believe sport is kind of a leisure activity for fun or a pursuit of personal interest) on children's participating in sport as a result of their Confucian-based educational beliefs – and that might encourage parents employing a relatively distant parenting attitude and strategies within sport. We thought this is probably the reason that those items representing children's anxious attachment characteristics with parents are absent in CAS-S.

Limitations and recommendations

Overall, we believe that CAS-S and CAS-A could be considered as well-validated attachment instruments in their current version and provide considerable contributions to attachment-related measurements and research in contextual parental attachment.

Nevertheless, there are some potential drawbacks and limitations that should be noted here for further improvements in future studies. Firstly, we thought that the examination of the predictive validity of CASs could be improved by measuring contextual parental attachment and the relevant outcome variables (e.g., context-specific need satisfaction and frustration) in separate time points in order to test their causal hypotheses. In other words, the predictive validity of CASs examined in this current study was only able to show CASs were related to outcome variables as both of predictors and outcome variables were assessed at the same time point, suggesting causal relationships could not be evidenced. Furthermore, future studies may also consider to investigating test-retest reliability of CASs or concurrent validity (which examines their associations with other contextual attachment-related measurements with the same/different constructs) in order to provide more informative evidence in scale validation.

Secondly, the examination of measurement invariance across cultures, genders, ages is absent in this present study. This is also an important issue that needs to be further improved in future research. More specifically, CASs was developed and validated in a sample of Taiwanese youths. The structures of CASs are seemingly different from existing Western-based state, trait, or relational-specific attachment instruments in the contexts of sport and academics (e.g., ECR-S; Wei et al., 2007; Davis & Jowett, 2013; IPPA-R; Zhang et al., 2011; Gullone & Robinson, 2005). Considering people's beliefs and norms within close relationships in Asian countries are relatively different from Western people, we thought that CASs should be able to utilize in the contexts that have similar cultural values as Taiwan (e.g., Asian societies). Nevertheless, it seems still necessary to further validate CASs in other Asian populations in order to ensure measurement equivalence across Asian countries. Moreover, previous research (e.g., Ullrich-French et al., 2011; Li, Bunke, & Psouni, 2016; Lisinskiene & Juskeliene, 2019) have indicated that *boys*' attachment schemata with *fathers* and *girls*' attachment schemata with *mothers* are more accessible, applicable, and influential in the predictions of children's wellbeing and domain-specific outcomes. This is probably because father and mother have different expectations and parenting behaviours toward their boy's and girl's engagement in sport and academics. These parenting differences might affect female and male children's attachment-related perceptions (e.g., how they weigh the importance of engagement in sport/academics, how they weigh the unique importance of, and specific needs from, mother and father in their sport/academics in an attachment sense). In this study we did not further examine gender invariance between the models of male and female youths' attachment relationships with an assigned parent (i.e., father or mother) in the

procedures of validating CASs. This might render a concern that whether the dimensions and characteristics of CASs among specific child-parent models (i.e., boy-father, girl-father, boy-mother, and girl-mother bond) would be consistent or not is still questionable. We thought this issue is important to be further explored in future research.

Besides, Collins and Read (1994) suggested that individuals could develop separate and independent models of attachment with *close partners* (e.g., parents, peers, romantic partners) across different developmental stages (e.g., childhood, adolescence, adulthood). Which model could actually guide one's attachment-related perceptions and behaviours might depend on which model could better apply to the "specific" situation encountered (i.e., the strength of the model, whether the model matches the features of the situation, and the specificity of the model). Certain relationships might carry more weight in relation to the influence they have on individuals' attachment-related cognition, affect, and behavior (Collins & Read, 1994). Therefore, we thought examining age equivalence of CASs (e.g., late childhood, aged 9-11 years; early to middle adolescence, 12-14 years; middle to late adolescence, 15-17 years) would be a promising issue for future research. Moreover, we also suggest future studies to control for the duration of youths' engagement in sport when processing cross-validation examinations in order to obtain a better view of the convergent and discriminant validity of CASs.

Thirdly, the participants selected in this study was youth athletes (considering the CAS-S is about sports-related attachment). Generally, it is desirable to conduct scale validation on as heterogenous a population as possible. Validating the scales on such a biased sample (with highly involved parents in sport, who are also involved in the academic context) might lead to poor discriminant ability in a community sample. That is, CAS-S might be well suited to detect contextual variation in sport-related attachment for youth athletes, but not for youths less involved in sports. Therefore, the measurement and conceptualization of context-specific parental attachment needs further development. In this study, we assumed that the contexts of academics and sport were adequate reflections of key contexts that played a significant role in Taiwanese youths' family lives. This assumption may not be an adequate reflection of a context for all families, cultural groups, and individuals. It may be that our sample of young athletes (who likely have a higher investment in sport and whose parents are perhaps more highly involved) are a biased reflection of the sporting context and that both the measure and the findings are less applicable to less athletic youth samples. This also speaks to a need to question whether context-specific measures of attachment-related characteristics can ever be completely generalizable. Perhaps the specific contexts in individuals' lives will

always vary and there will either be a need to develop specific measures of context-specific attachment that adequately reflect each given context or to develop a context-specific attachment measure that is adaptable enough to reflect a spectrum of contexts and can be adapted to fit the contexts that reflect participants' lived experiences.

Finally, a challenging conceptual issue also relates to the extent to which we can be sure that the items in our context-specific attachment scales reflect "attachment" patterns in a bona fide sense and not simply parenting practices in a broader sense. This relates to being able to distinguish how context-specific child-parent *attachment* can be distinguished from context-specific *parental behavior*. While the two may be closely connected, there is also a need to carefully distinguish them. In the development of our context-specific measures, we only included, drew upon, and adapted items from validated scales that are attachment-specific and seek only to measure patterns of attachment. By adapting these items (and including items that we felt were relevant to a context-specific assessment of attachment) we sought to preserve validity in relation to a focus on attachment-relevant characteristics and not parental behavior in general. For example, we assumed that our contextual attachment assessment reflected a context-specific working model consistent with the idea of how attachment is represented in an abstract sense. Future work in this area would do better to explore what such contextual attachment representations reflect and how they relate to, yet differ from, general parental contextual behavior.

Chapter 4 Study 2: Is parental attachment security contextual? Exploring context-specific child-parent attachment patterns and psychological well-being in Taiwanese youths

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Study two was based on the proposed concept of contextual attachment and hierarchical structure representations within specific relationships in chapter two (literature review), to explore the contextual structure of parental attachment and their associations with children's global-level attachment characteristics and psychological-related outcomes by utilizing CASs validated in chapter three (study one). More specifically, a cross-sectional study was designed to explore (1) whether youths' attachment schemata in relation to a particular parent could vary across contexts, (2) whether contextually-different attachment profiles associate with youths' perceived global and context-specific psychological need satisfaction and need frustration, as well as self-concept and depression, (3) whether the degree of fluctuation in parental attachment security between contexts relates to youths' global psychological need satisfaction and frustration, self-concept, and depression.

Statement of Authorship

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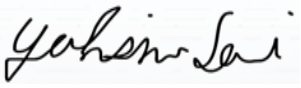
Candidate's contribution to the paper (detailed, and also given as a percentage).	The candidate contributed to/ considerably contributed to/predominantly executed the... Ya-Hsin Lai made considerable contributions to the conception of this study and the methodological design (80%). Ya-Hsin Lai predominantly executed the field work, including the acquisition, analysis and interpretation of data for the study (85%). The presentation of the data in journal format was predominantly executed by Ya-Hsin Lai (85%).				
Statement from Candidate	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature.				
Signed			**Date**		

Is parental attachment security contextual? Exploring context-specific child-parent attachment patterns and psychological well-being in Taiwanese youths

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Abstract

No research to date has explored the possibility of context-specific, within-relationship fluctuation in attachment security. In this present article, two cross-sectional studies were designed to explore fluctuations in within-parent attachment security between the contexts of sport and academics, in relation to global attachment patterns and indicators of psychological wellbeing. A sample of 256 youth athletes (62% boys, $M_{age} = 13.74 \pm 2.63$) from 21 different sports clubs in 17 primary and secondary in Taiwan was recruited. A series of analyses was applied to examine research hypotheses. Results indicated that youth can and do perceive within-parent attachment patterns differently depending upon context but that the relationship of such differences to context-specific outcomes is complex. Of particular interest was that the *degree* of within-parent attachment variability between contexts was clearly and negatively related to indices of psychological wellbeing. This suggests that contextual variation may be a meaningful and useful way to explore within-parent attachment fluctuation.

Introduction

While the stability of a person's attachment representations has been broadly explored and discussed across the lifespan (e.g., Carr, 2012; Fraley, 2002; Simpson, et al., 2007; Dykas & Cassidy, 2011), no research to date has explored the possibility of context-specific variation in attachment security within a given relationship. Girme and colleagues (2018) have identified support for the idea that within-person variation in general attachment representations can occur over time and can significantly impact relational wellbeing. In the present article we introduced the idea of context-specific attachment and sought to examine whether child-parent attachment security can be experienced differently across the contexts of sport and academics. We then explored the relationship such context-specific attachment patterns shared with general attachment representations and psychological wellbeing.

The conceptualization of hierarchical attachment representations within a given child-parent relationship: Global, contextual, and episodic levels of attachment

The research on adult attachment has diverged into two distinct research "traditions" (Carr et al., 2013). On one hand, are researchers who "…tend to think psycho-dynamically, be interested in clinical problems, prefer interview measures and behavioural observations over questionnaires, study relatively small groups of subjects…" (Bartholomew & Shaver 1998, p. 27). On the other hand, are personality and social psychologists "…who tend to think in terms of personality traits and social interactions, be interested in normal subject populations, prefer simple questionnaire measures, study relatively large samples…" (Bartholomew & Shaver 1998, p. 27). These lines of research are both derived from the assumptions at the heart of Bowlby's theory (Jacobvitz et al., 2002) yet have evolved according to underlying assumptions and measurement techniques of contrasting subcultures (Bartholomew & Shaver 1998). Many of the distinctions between these two lines of enquiry are reflected in how researchers have approached the measurement of attachment constructs. Not surprisingly, these different lines of research give rise to significant distinctions in terms of how attachment research is conceptually underpinned, how attachment is measured and how results are interpreted. In this investigation, we conceptualise attachment style in a social psychological sense, using a self-report paradigm as the basis for our studies.

Empirical research in the social psychological tradition has begun to explore variation in attachment models across the lifespan and within specific relationships (e.g., Davila & Sargent, 2003; La Guardia et al., 2000; Fraley & Davis, 1997; Trinke & Bartholomew, 1997; Collins & Read, 1994; Pierce & Lydon, 2001; Overall et al., 2003; Gillath et al., 2016). For

example, Davila and Sargent (2003) indicated that variation in interpersonal loss (e.g., loss of emotional support, closeness, or affection) in a specific relationship were associated with increases in attachment insecurity within the relationship. La Guardia and colleagues (2000) found that when individuals felt greater satisfaction of specific psychological needs (i.e., competence, autonomy, relatedness) in a given relationship, then they felt greater attachment security within that relationship. Furthermore, Gillath and colleagues' (2016) hierarchical perspective proposes that within a given relationship episodic/state-like factors can temporarily shape attachment representations, giving rise to state-like, episodic variation in attachment over time. For example, having a serious argument with a parent may cause a loss of trust in her, momentarily enhancing attachment insecurity within the relationship. Furthermore, Girme and colleagues (2018) have recently identified that within-person variation in attachment security is possible over time and that such variation impacts psychological wellbeing because it contributes to a lack of consistency. This can be particularly challenging for securely attached individuals who "expect" consistency from partners (Girme et al., 2018).

Following these findings, in this study we argue that it may also worth considering variation in relation to contextual representations of attachment in a given relationship. Contextual variation might be referred to as a cluster of repeated momentary episodes in a given context that create meaningful "contextual variability" within a specific relationship (Lai & Carr, 2018). For instance, in the context of child-parent relationships, there may be particular parental behaviours that are more prominent in a given context (e.g., sport or academics) that trigger or shape individuals' attachment representations with the parent in one specific context but *not* in other contexts where interactions with the same parent occur. Also, individuals' attachment orientations within a given relationship at a contextual level may be shaped by lower (e.g., episodic) and/or higher (e.g., global) order levels, which might mean that context-specific schema act as mediators to connect global and episodic levels of specificity by means of top-down and/or bottom-up processes (Lai & Carr, 2018). Our illustrated hierarchical structure of attachment representations within a specific parent-child relationship refers to Figure 1.

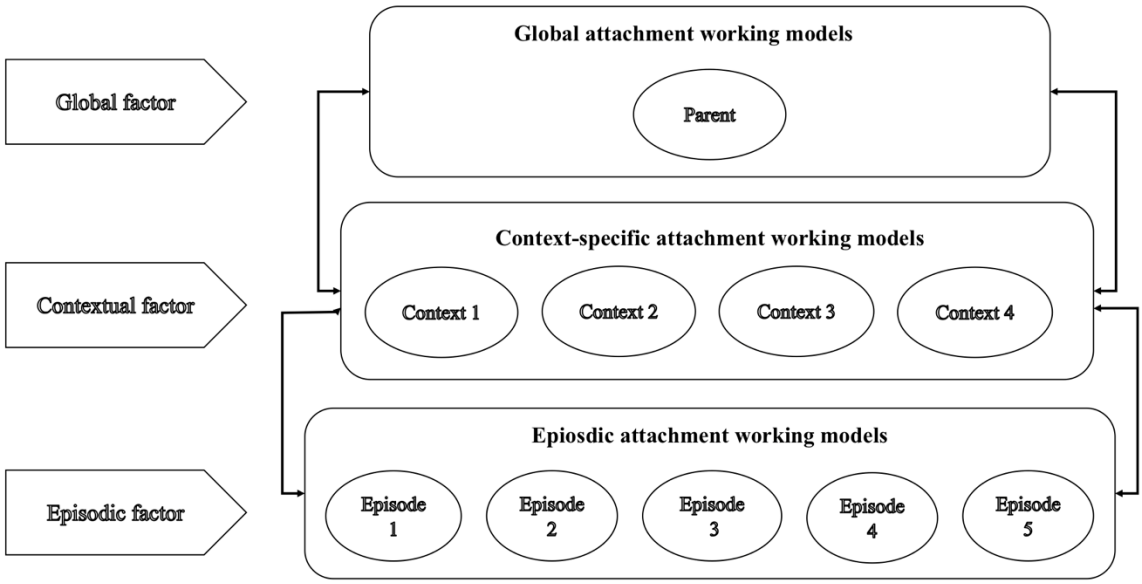


Figure 1 A hierarchical structure of attachment representations within a specific parent-child relationship

Why should child-parent attachment representations vary across contexts?

Context-specific representations of attachment might be referred to as schema in which one's attachment representations with parents vary by context (e.g., sport or academics) and are stored and experienced as such in a psychological and emotional sense. If this were true, it would be important to ask what kinds of contexts have the capacity to shape and sculpt a contextual-level child-parent attachment representation. Of course, this question is complex and may depend heavily upon a variety of factors. It could be argued that many Western children's lives revolve around contexts such as academics and/or extracurricular activities like sport, art, or music (e.g., Jamber, 1999; Greendorfer & Lewko, 1978; Sage, 1980, Carr & Weigand, 2014) and previous research has shown a great deal of interest in the mechanisms behind parental influence on wellbeing in such contexts (e.g., Fredricks & Eccles, 2004; Eccles et al., 1998; Tofler et al., 2005b; Assor et al., 2004; Weigand et al., 2001).

For instance, in the specific contexts of academics and sport, research (e.g., Ames, 1992; Brophy, 1987) has strongly suggested that parental belief systems in relation to a child's ability and their subjective evaluation of children's successes and failures serve as influential contextual cues that shape children's beliefs, affective patterns, and behavioural responses in that context. Environmental characteristics (e.g., highly public, competitive arenas, evaluation/reward systems, interpersonal complexity) emphasized in contexts such as academics or sport have the capacity to induce parental focus on specific goals and expectations for children and this has been shown to influence psychological outcomes (e.g.,

enjoyment, cognitive anxiety, needs satisfaction) (Weiss et al., 2009; Hall & Kerr, 1997; White & Zellner, 1996). In short, there are reasons to believe that specific contexts have the capacity to fundamentally alter the "quality" of child-parent interactions to the extent that they may constitute shifts in how child-parent attachment relationships are experienced and perceived.

In the sporting literature, for example, parents who create a performance-oriented motivational climate, in which recognition, praise, evaluation, and value are attached to children's demonstration of ability and superiority, are more likely to resort to controlling practices in their interactions with children. Children exposed to this motivational atmosphere have been shown to experience thwarted needs for autonomy, competence, relatedness, and associated negative emotions (e.g., anxiety, stress, pressure), especially when they are not able to meet parental requirements (Carr & Weigand, 2014). These performance-approach oriented motivational, cognitive, and affective cues could activate and foster sport-specific contextual child-parent attachment representations. However, these sport-specific attachment representations need not necessarily be salient with the same parent in other contexts where secure attachment interactions may be found. This may be an example of how unique contextual cues might trigger context-specific attachment schema within child-parent relationships.

The concepts of parental conditional regard (PCR) and achievement by proxy distortion (ABPD) have also been considered as maladaptive parenting practices, especially in the context of sports and academics (Tofler & Butterbaugh, 2005a; Tofler et al., 2005b; Baldwin, 1994; Deci & Ryan, 1995; Harter, 1993; Assor et al., 2004; Curran, 2018). These achievement domains are platforms for the demonstration of PCR and ABPD as context-specific socializing practices. Specifically, parental conditional positive regard (PCPR) is thought to exist when parents are perceived to offer more affection, recognition and attention than usual when the child meets their expectations and desired aims. In contrast, parental conditional negative regard (PCNR) is when parents are perceived to withhold or give less affection, love and esteem than they usual do when the child does not meet their expectations. PCPR/PCNR have been identified as disruptive parenting practices linked to significant psychological costs (e.g., introjected regulation, unstable self-esteem, negative emotions, poor relationships and well-being; perfectionistic strivings and concerns; competence contingent self-worth) (Assor et al., 2004; Assor & Tal, 2012), Assor et al., 2014; Curran, 2018). Given that PCR has been considered as a "domain-specific" socializing strategy for bolstering contingent introjection (Assor, 2011; Assor et al., 2014; Ryan et al., 1995), it is

plausible that context-specific PCR might serve as a contextual cue that elicits predominantly insecure child-parent attachment schema in a given context.

"ABPD" may be another mechanism by which parents execute "context-specific" maladaptive socializing practices in children's achievement domains (especially in sport) (e.g., Tofler & Butterbaugh, 2005a; Tofler et al., 2005b). As an example, sport can be a competitive and reward/evaluation-focused context in which the demonstration of ability is important and emphasized by significant others. The unique characteristic and atmosphere of sport is an open door to aggressive and ambitious parents, vulnerable to ABPD pressures, especially when parents place their self-worth on a child's success and failure in sport. Objectification of a child is one of the mechanisms of parental achievement by proxy in Tofler at al.'s proposed ABPD model. That is, parents may come to regard their children as an object, rather than a person, as a means to indirectly satisfy their own needs for achievement. This controlling parental behaviour may drive a child to succeed to please parents or feel valued. However, it may also lead children to feel guilt or lose self-worth when they cannot meet parents' expectations and requirements. This introjection of parental objectification, thwarting one's psychological needs for autonomy, competence and relatedness in sport, could serve as an influential contextual cue to activate insecure "sport-specific" attachment representations.

The present study

Recent research exploring child-parent attachment and children's wellbeing has started to think about attachment in relation to specific contexts (especially achievement domains - like academics and sport) in children's lives. For example, a number of researchers has examined the influence of parental attachment relationships on sport/PA-specific and global wellness indices (e.g., physical and performance self-concept, psychological need satisfaction and motivation in PA, health behaviours, sport involvement, sport friendship, subjective vitality, self-esteem, positive and negative affect) (e.g., Newland et al., 2013; Sukys et al., 2015; Ullrich-French et al., 2011; Felton & Jowett, 2013a, 2013b, 2017; Carr, 2009; Carr & Fitzpatrick, 2011) as well as academics/education-specific and global well/ill-being (e.g., academic self-efficacy, achievement goal orientations in school, school-related and global social-emotion outcomes, psychological need satisfaction and subjective loneliness in university, depressive symptoms) (e.g., Newland et al., 2013; Newland et al., 2010; Carr et al., 2013; Maltais et al., 2015; Wright et al., 2014). However, the majority of scholars has tended to think about child-parent attachment patterns on a global-level and used

global patterns of attachment to predict context-specific psychological outcomes. No research to date has explored context-specific attachment patterns within a given relationship. According to our aforementioned conceptualization of contextual parental attachment, we argue that pan-domain *global* constructs might not be able to truly reflect sport-specific and academic-specific representations as previous studies exploring how relationship-specific and global attachment schemata function together in a hierarchy of working models within relational networks have suggested that individuals are able to form relationship-specific (e.g., parent, friend, romantic partner) attachment representations that deviate from their crystallized global models (e.g., Collins & Read, 1994; Fraley & Davis, 1997; Pierce & Lydon, 2001; Overall et al., 2003). Besides, previous researchers (e.g., Davila & Cobb, 2003; Davila & Sargent, 2003) have also suggested that attachment schemata, like any other beliefs or attitudes, are prone to changes in accordance with current emotional (e.g., mood) or environmental factors (e.g., social circumstances, contextual factors). Hence, it may be helpful to explore whether internal working models of *attachment* could be conceptualized and assessed in this way.

The major purpose of this current study was to explore Taiwanese youths' variation in attachment security across the contexts of sport and academics and to relate this to both global attachment patterns and indicators of psychological wellbeing. A cross-sectional design was utilized to investigate three main research questions: (1) Whether youths' attachment schema in relation to a particular parent could vary across contexts; (2) Whether contextually-different attachment profiles associated with youths' perceived global and context-specific psychological need satisfaction and need frustration, as well as self-concept and depression; (3) Whether the degree of fluctuation in parental attachment security between contexts related to youths' global psychological need satisfaction and frustration, self-concept, and depression. Based on previous attachment relevant literature, we assumed that (1) youths' attachment schemata in relation to a particular parent could vary across contexts, that is, contextually-different attachment combinations could be found in our Taiwanese youths participants, (2) youths' contextually-different attachment profiles could associate with their perceptions of a series of psychological outcomes (i.e., global and context-specific psychological need satisfaction and need frustration, as well as self-concept and depression), (3) the degree of fluctuation in parental attachment security between contexts could relate to youths' global well/ill-being indices (i.e., psychological need satisfaction and frustration, self-concept, and depression).

Method

Participants

A sample of 275 youth athletes in Taiwan were recruited during the second semester of the school year and/or summer training sessions. The period of data collection for study two was approximately four months (from May to August). The same criteria for selecting appropriate sample as study one was also applied for this study. After screening out 19 ineligible cases and invalid responses (i.e., fast and repeat responses), 256 valid surveys (a 93% return rate) with signed consent were secured from 17 schools and 21 different sports clubs (age range = 9 – 17 years; 62% boys, M_{age} = 13.74±2.63). Youth participants represented their sports at four levels including club (14.5%), county/district (28.5%), national (53.1%), and international (3.9%) levels. 26.6 % of youth athletes have involved in their current sport between six months and one year, 73.4% of them have participated in their sport above one year. Youths reported spending a mean number of 10.48hr (SD = 6.03) in involving sport-related activities (e.g., training, competitions) per week during term time and 17.24hr (SD = 10.53) per week during off-term time. Around 10% of parents have involved in their children's sport as a coach (8.6%) or parents had previously engaged in the same sport (as athletes) as their children's current sport (11.7%). 16.4% of youth athletes indicated they have won personal prize money in their current sport. According to Tabachnick and Fidell's (2013) suggestions, the criterion of $p < .001$ with degrees of freedom was applied for investigating multivariate outliers with Mahalanobis distance. No further outliers among 256 cases were detected. Participants were recruited to achieve a balance between rural and urban areas and between seven major cities in Taiwan.

Procedures

After acquiring permission for data collection from schools and signed consent forms from parents and participants, each data collection session was confirmed with an appointed school staff member (i.e., teachers or coaches of sports clubs) in advance and surveys were administered by the lead author. Youths were instructed to complete anonymous self-report measures in class or a quiet place in the school (without parents present) and were encouraged to raise any questions concerning difficult items to the lead author. They were asked not to confer with peers and to be as honest as they could while responding. All participants were informed that they could refuse or withdraw their participation at any time. A small gift (either stationary or a sport-related accessory) was given to children who

completed and returned the survey. Ethical approval was obtained from the authors' institutional ethics committee.

Measures

Contextual child-parent attachment

Youth participants' sport-specific and academic-specific attachment patterns with the selected parent (defined as child-parent attachment representations with regard to sport and academic relevant issues) were measured using the Traditional-Chinese version of CAS-S and CAS-A (which have been well developed and validated in study one, details refer to chapter 3). CAS-S composed of a 2-factor model with a set of 7 items, representing 3 items for *secure* style and 4 items for *insecure-avoidant* style. CAS-A is composed of a 2-factor model with a set of 8 items, representing 4 items for *secure* style and 4 items for *insecure* style. Youth participants were asked to rate each item on a 5-point Liker scale ranging from 1 (strongly disagree) to 5 (strongly agree). The total score of each of dimensions in CAS-S and CAS-A was calculated by averaging the sum of the subscale items.

Global child-parent attachment

Youth participants' global attachment styles with the selected parent were assessed using the Traditional-Chinese version of the Inventory of Parent and Peer Attachment (Sun & Yen, 2004), an adaption of the IPPA (Armsden & Greenberg, 1987). This adapted inventory consists of 20 items; 9, 7, and 4 items, respectively, tapped into three subscales of communication, trust, and alienation (reverse score) on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A total global attachment score was calculated by averaging the sum of the subscale items. Considering the younger athletes (aged 9-10) in this study, all items were reviewed by a group of six schoolchildren (aged 9) before the main survey was administered. A CFA was then performed, after deleting one item (i.e., I feel angry with my parents) and yielded an acceptable fit: χ^2 (145) = 267.91, p< .001; CFI = 0.94; RMSEA = 0.06. All items loaded between .50 and .78 upon three components: *communication* (e.g., "My parent helps me to understand myself better"), *trust* (e.g., "My parent respects my feelings"), *alienation* (e.g., "I get upset with my parent easily") (Cronbach's α ranged from .73 to .87).

Global and contextual psychological need satisfaction and frustration

Youth participants' perceptions of need satisfaction and frustration both *globally* and *in the contexts of sport and academics* were measured with an adapted (Simplified-Chinese) version of the Basic Psychological Need Satisfaction and Frustration Scale (BPNSF; Chen et al., 2015). The BPNSF comprised three major components of basic needs: (1) *need for autonomy* refers to the experience of volition and psychological freedom when engaging in an activity, (2) *need for competence* concerns the experience of being confident and effective in dealing with one's environment and achieving desired outcomes, and (3) *need for relatedness* involves the feeling of being connected with and loved or cared for by significant others. BPNSF is a 24-item self-report questionnaire consisting of six four-item subscales (autonomy satisfaction, autonomy frustration, competence satisfaction, competence frustration, relatedness satisfaction, relatedness frustration). Considering the differences in word usage between Taiwan and Mainland China and the readability for nine-year-old youth athletes (all participants in Chen and colleagues' study were between age 17-18), we slightly reworded the items in the Traditional-Chinese version in accordance with common Taiwanese expression. All items were then reviewed by a group of psychologists, schoolteachers, sport coaches, and younger athletes to refine some difficult items. In order to facilitate participants with differentiating between their global, sport-specific and academic-specific experiences in the items, three stems (e.g., "When I participate in sport…", "When I am involved in academic-related activities…", and "In general …") preceded each item on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). By doing so, participants were expected to respond to each item three times by reflecting on and comparing global ratings and the different contexts of sport and academics at the same time. Total sport-specific, academic-specific, and global BPNSF scores were calculated by averaging the sum of the subscale items. The Cronbach's α values for youths' need satisfaction and frustration in the context of sport-specific (.89 and .83), academic-specific (.90 and .85), and globally (.90 and .85) were internally consistent.

Self-concept and depression

We employed a valid Traditional-Chinese version of the Beck Youth Inventories-II for Children and Adolescents (Hung, Chen, Juo, 2008; J. Beck, A. Beck, Jolly, & Steer, 2005) to assess current self-reported symptoms of depression and self-concept among the youth athletes. Specifically, five inventories are included in the BYI-II to separately or in combination evaluate children's and adolescents' (age range from 7 to 18 years) *depression,*

anxiety, anger, disruptive behavior, and self-concept. Each inventory contains 20 items about thoughts, feelings and behaviours associated with emotional and social impairment in youth. For the purpose of the current study, only the Beck Depression Inventory (BDI-Y) (e.g., self, life and the future, feelings of sadness and guilt and sleep disturbance) and the Beck Self-Concept Inventory (BSCI-Y) (i.e., cognitions around competence, potency, and positive self-worth) were used to assess youths' negative and positive thoughts. Youth participants were asked to rate each symptom on a 4-point Likert scale ranging from 0 (never experienced) to 3 (always experienced). A total depression and self-concept score were calculated by summing the subscale items and were then transferred to T scores (varied with gender and age groups). The Cronbach's α values were .93 for the BDI-Y and .92 for the BSCI-Y.

Results

Preliminary analyses

Considering some demographic factors related to youth athletes' sport participation and parenting practices could affect the main findings, Multivariate Analysis of Variance (MANOVA) was conducted to examine the impact of four relevant factors: (1) youths' gender, (2) the competition level of the sport they played (i.e., club, county, regional, and national levels), (3) if the nominated parent had also been the coach of the child's sport, and (4) if the parent was previously an athlete themselves. These factors were examined in relation to the four subdimensions of contextual attachment (i.e., security in sport, insecurity in sport, security in academics, and insecurity in academics). Results revealed no significant differences by gender (Wilk's $\Lambda = 0.97$, $F_{(4, 225)} = 1.75$, $p = .14$; $\eta 2 = .03$), competition level (Wilk's $\Lambda = 0.96$, $F_{(16, 688)} = 0.93$, $p = .49$; $\eta 2 = .02$), a parent being the coach (Wilk's $\Lambda = 0.96$, $F_{(4, 225)} = 2.40$, $p = .06$; $\eta 2 = .04$), and the parent being an athlete (Wilk's $\Lambda = 0.99$, $F_{(4, 225)} = 0.33$, $p = .86$; $\eta 2 = .01$).

Clustering among contextual and global attachment patterns

In order to explore the different combinations of attachment patterns that youths perceived for their nominated caregiver in the contexts of sport and academics, guided by the instructions of Everitt, Landau, Leese, & Stahl (2011), two-stage methods of (variable-centred) cluster analyses sought to partition the sample into different clusters based upon their scores for (a) CAS-S security and insecurity for their nominated caregiver, (b) CAS-A security and insecurity for their nominated caregiver. At the first stage, a Ward's hierarchical clustering method (with the measure of squared Euclidien distance) was conducted *twice* to obtain dendrograms and agglomeration schedule, resulting in a two-cluster solution in each of

the separate contexts of sport and academics. Next, two K-means cluster analyses were utilized to verify the initial 2-cluster seeds generated in the first stage. For the two cluster analyses, if the values of the final cluster centres for a given variable were greater than the sample mean by 0.5 SD then we labelled the cluster as "high" for that variable, if the values were less than the mean by 0.5 SD then we labelled the cluster as "low" for that variable, and if the values were within a range of $\pm$ 0.5 SD from the sample mean then we labelled the cluster as "moderate" for that variable. Table 1 outlines the two-cluster solutions that we identified for each of the cluster analyses. For the CAS-S cluster analysis, cluster 1 reflected "low sport security and high sport insecurity" and cluster 2 reflected "high sport security and low sport insecurity". For the CAS-A analysis, cluster 1 reflected "low academic security and high academic insecurity" and cluster 2 reflected "high academic security and low academic insecurity".

Table 1. Means and standard deviations of cluster centres for variables included in each cluster analysis

Variables/clusters in each of the two contexts	Total Sample M (SD)	Cluster 1 M (SD)	Cluster 2 M (SD)
In the context of sport (cluster analysis 1)	**(N=256)**	**(n=121)**	**(n=135)**
Sporting Security	3.97 (0.75)	3.46 (0.66)	4.43 (0.48)
Sporting Insecurity	2.08 (0.83)	2.73 (0.65)	1.49 (0.45)
In the context of academics (cluster analysis 2)	**(N=256)**	**(n=129)**	**(n=127)**
Academic Security	3.91 (0.74)	4.35 (0.51)	3.46 (0.66)
Academic Insecurity	2.23 (0.78)	1.66 (0.47)	2.80 (0.60)

Note. M (SD): Mean (Standard Deviation)

Using these cluster analyses as a starting point, we then explored the whole sample in relation to the combination of youths' attachment profiles for each of the contexts of sport and academics. For example, if a participant fell into cluster 1 for the sporting cluster analysis and cluster 2 for the academic cluster analysis, then they might be seen to reflect a profile of "low security in the sporting context and low security in the academic context" – which we operationalized as their within-parent attachment profile. Exploring the sample in this way, four different combination groups emerged: (1) High security (but low insecurity) in sport and academics – *contextually-consistent security*, (2) high insecurity (but low security) in sport and academics – *contextually-consistent insecurity*, (3) high security (and low insecurity) in sport and low security (high insecurity) in academics – *security in sport and*

insecurity in academics, (4) low security (high insecurity) in sport and high security (low insecurity) in academics - *insecurity in sport and security in academics*. It is noteworthy that combinations (3) and (4) (n=74 youth, 30% of sample) were suggestive of participants who experienced their nominated parent as significantly different in an attachment sense between the contexts. Table 2 displays the labels of these four combinations in tabular form.

Table 2. Four combination profiles grouped according to cluster analyses of CAS-S and CAS-A attachment ratings

Group label	N=256 (%)	In the context of sport	In the context of academics
(1) Contextually-consistent attachment security	n=106 (41%)	Cluster 2	Cluster 1
(2) Contextually-consistent attachment insecurity	n=76 (30%)	Cluster 1	Cluster 2
(3) Contextually-different attachment (security in sport and insecurity in academics)	n=51 (20%)	Cluster 2	Cluster 2
(4) Contextually-different attachment (insecurity in sport and security in academics)	n=23 (9%)	Cluster 1	Cluster 1

One-way analysis of variance

Global attachment characteristics were not included in exploring youths' combinations of contextual attachment profiles, Instead, a one-way ANOVA was used to examine the associations between the four different within-parent combinations (the four groups displayed in Table 2 above) and global attachment security. The results indicated that there is a significant difference in how youths from the different groups perceived the level of global attachment security with their nominated parent, $F_{(3, 252)} = 49.10$, $p < .001$. A Tukey HSD *post hoc* test revealed that youths reported highest global attachment security with their parent when both contexts were consistently secure, lowest global attachment security when both contexts were consistently insecure, and moderate levels of global security when one context was secure, and one was insecure. (for descriptive statistics refer to Table 3).

Multivariate analyses of variance

In order to further explore associations between different within-parent context-specific attachment combinations with youths' psychological outcomes, two separate MANOVAs were conducted with (1) contextual need satisfaction and need frustration, (2)

global need satisfaction and need frustration, self-concept, and depression as outcome variables. Before each MANOVA, the data were screened in a series of a priori examinations (for outliers, normality, linearity, homogeneity tests, singularity, and multicollinearity diagnostics, Tabachnick & Fidell, 2013). Results revealed significant differences in relation to academic-specific and sport-specific psychological need satisfaction and need frustration, Wilk's $\Lambda = 0.73$, $F_{(12, 659)} = 6.91$, $p < .001$; $\eta 2 = .10$). Follow-up univariate tests revealed significant main effects for: (1) Need satisfaction in sport, $F_{(3, 252)} = 10.87$, $p < .001$; $\eta 2 = .12$, (2) need frustration in sport, $F_{(3, 252)} = 14.76$, $p < .001$; $\eta 2 = .15$, (3) need satisfaction in academics, $F_{(3, 252)} = 22.18$, $p < .001$; $\eta 2 = .21$, and (4) need frustration in academics, $F_{(3, 252)} = 21.40$, $p < .001$; $\eta 2 = .20$. Tukey's HSD *post hoc* pairwise comparisons were conducted to further examine the differences. The significant difference (see Table 3) on "sport-specific need satisfaction" appeared between three groups (*contextually-consistent attachment security>security in sport/insecurity in academic>contextually-consistent insecurity)*. Similarly, the significant differences also shown on "sport-specific need frustration", but in an opposite way (the group of *contextually-consistent insecurity*>in*security in sport/security in academic>contextually-consistent security).* Moreover, the group of *contextually-consistent security* and the group of *insecurity in sport/security in academic* experienced more "academic-specific need satisfaction" than the groups of *security in sport/insecurity in academics* and *contextually-consistent insecurity.* For "academic-specific need frustration", results indicated that the group of *contextually-consistent insecurity* and the group of *security in sport/insecurity in academics*>the group of in*security in sport/security in academics*>the group of *contextually-consistent security.*

Next, given the above evidence that youths of different within-parent attachment combinations differed in relation to their global attachment relationships with a nominated parent, we employed another one-way MANOVA to explore if this significant difference also existed in the association between within-parent attachment combinations and global wellbeing outcomes. The results indicated that the four contextual attachment combinations were significantly different on youths' global psychological outcomes, Wilk's $\Lambda = 0.75$, $F_{(12, 659)} = 6.40$, $p < .001$; $\eta 2 = .09$). The results of univariate tests revealed that the significant effects were on global need satisfaction ($F_{(3, 252)} = 18.87$, $p < .001$; $\eta 2 = .18$), global need frustration ($F_{(3, 252)} = 21.02$, $p < .001$; $\eta 2 = .20$), self-concept ($F_{(3, 252)} = 7.53$, $p < .001$; $\eta 2 = .08$), and depression ($F_{(3, 252)} = 8.83$, $p < .001$; $\eta 2 = .10$). Follow-up Tukey's HSD *post hoc* tests (see Table 3) revealed that the group of *contextually-consistent security* and the group of *insecurity in sport/security in academics* experienced more "global need

satisfaction" than the group of *contextually-consistent insecurity* and the group of *security in sport/insecurity in academics*. In terms of "global need frustration", the group of *contextually-consistent insecurity* and the group of *security in sport/insecurity in academics*>the group of in*security in sport/security in academics*>the group of *contextually-consistent security.* Furthermore, the group of *contextually-consistent security* had higher "self-concept" than the groups of *contextually-consistent insecurity* and the group of *security in sport/insecurity in academics.* The group of *contextually-consistent insecurity* and the group of *security in sport/insecurity in academics* perceived higher "depression symptoms" than the group of *contextually-consistent security.*

Table 3. Group means (Standard Deviations) and Tukey's HSD *post hoc* results for multiple attachment profiles

	Contextually-different attachment		Contextually-consistent attachment security	Contextually-consistent attachment insecurity
	Security in sport/Insecurity in academics	Insecurity in sport/Security in academics	Security in sport/academics	Insecurity in sport/academics
Global attachment security	3.60^{a} (0.43)	3.89^{a} (0.58)	4.12^{a} (0.46)	3.26^{a} (0.52)
Need satisfaction in sport	4.01^{a} (0.44)	4.08 (0.58)	4.20^{a} (0.59)	3.70^{a} (0.60)
Need frustration in sport	2.39 (0.65)	2.15^{a} (0.70)	1.92^{a} (0.54)	2.43^{a} (0.51)
Need satisfaction in academics	3.55^{ac} (0.56)	3.75^{ad} (0.57)	4.04^{bc} (0.58)	3.35^{bd} (0.60)
Need frustration in academics	2.60^{b} (0.66)	2.34^{bc} (0.73)	2.01^{bc} (0.58)	2.65^{c} (0.51)
Need satisfaction in global	3.79^{ac} (0.47)	3.90^{ad} (0.53)	4.21^{bc} (0.54)	3.61^{bd} (0.62)
Need frustration in global	2.47^{a} (0.68)	2.24^{ab} (0.71)	1.90^{ab} (0.56)	2.54^{b} (0.52)
Self-concept	1.86^{a} (0.47)	1.83 (0.55)	2.00^{ab} (0.48)	1.64^{b} (0.50)
Depression	0.61^{a} (0.53)	0.49 (0.51)	0.38^{ab} (0.33)	0.70^{b} (0.47)

Note. For each outcome variables, profiles sharing the same subscript are significantly different ($p < .05$).

Linear regression analyses

Our MANOVAs explored how qualitative differences in context-specific attachment patterns linked to psychological wellbeing. Next, a series of regression analyses were utilized to test whether the size of the difference in perceived attachment patterns (regardless of the

qualitative nature of the difference) between contexts for the nominated parent was related meaningfully to wellbeing indices. To do this, four linear regression analyses were conducted to examine whether the degree of difference in attachment security across contexts (the difference between sport and academic context perceptions within-parents) predicted (1) global psychological need satisfaction, (2) global psychological need frustration, (3) self-concept, and (4) depression. A variable reflecting the variation in youths' attachment security across contexts was assessed by calculating size of the difference between the sport-specific and academic-specific attachment security scales and regressing this difference in security scales on the outcome variables.

All variables were screened for outliers, normality, linearity, homogeneity tests, singularity, and multicollinearity diagnostics (Tabachnick & Fidell, 2013). Results revealed that 82% of youth athletes (n= 256) experienced differences in attachment security between sport (CAS-S security scale) and academics (CAS-A security scale) contexts of between 0.8 to 2.5 (rated on a 5-point Likert scale). Furthermore, these differences in attachment security between contexts significantly predicted global need satisfaction ($R^2 = .03$, $\beta = -.20$, $F_{(1, 254)} = 10.47$, $p = .001$), global need frustration ($R^2 = .02$, $\beta = 13$, $F_{(1, 254)} = 4.27$, $p < .05$), self-concept ($R^2 = .02$, $\beta = -.14$, $F_{(1, 254)} = 5.03$, $p < .05$), and depression ($R^2 = .02$, $\beta = .16$, $F_{(1, 254)} = 6.31$, $p < .05$). Overall, the degree of difference in attachment security across the contexts of sport and academics significantly predicted a number of indices of wellbeing (for descriptive statistics and correlations refer to Table 4).

Discussion

Within the social psychological and self-report tradition of attachment research and following in the footsteps of interesting recent data (Girme et al., 2018), this study sought to explore the viability of context-specific attachment variation within a specific child-parent attachment relationship. While our data are exploratory, a series of analyses provided some initial evidence that could be taken to suggest that youth do detect differences in child-parent attachment patterns across different contexts of their lives and that these differences may be meaningful. In what follows, we discuss these findings in relation to some important issues.

Could youths' attachment schema in relation to a parent be different across contexts?

Around 70% of all participants (N=256) in this study reported contextually-consistent within-parent attachment patterns across the contexts of sport and academics (30% of them were consistently-secure across contexts). More importantly, around 30% reported

contextually-different within-parent attachment characteristics, suggesting that a significant proportion of the sample perceived their parent differently, in an attachment sense, across the contexts of sport and academics. This is important because it suggests that for some children and young people, parental attachment behavior can be experienced as inconsistent from context to context. Previous studies (e.g., Tofler & Butterbaugh, 2005a; Tofler, Knapp, & Lardon, 2005b; Rapport & Meleen, 1998) have suggested that in certain contexts parents can take on particular roles or ways of being (i.e., they may be a child's manager, their coach, or have particular hopes, dreams, or ambitions connected to the context and their child's involvement in it) that increase the likelihood that they are experienced by children as less caring and more controlling and may conflict with many of the fundamental aspects of caregiving typically associated with the child-parent relationship. For example, "managing" a child performer may require parents to adopt a more emotionally distant and objective perception of the child (e.g., in the managerial role perhaps the child is viewed as a "source of income" or as "the means to an end") that is incompatible with features of a caring and secure parental bond. Future research is needed to *qualitatively* explore the *quantitative* differences identified in perceptions of parents across contexts and to begin to identify and better understand the nature of such differences in a qualitative sense. It may be, for example, that parents are unaware of such contextual differences but that children are able to articulate and pinpoint their behavioural origins. Future research is needed to further explore this finding.

How do contextually-different within-parent attachment profiles relate to psychological outcomes?

There were some interesting associations between the context-specific attachment patterns and the various outcome variables that we examined. Firstly, global attachment security was related to contextual attachment patterns in that youth who perceived high security across both contexts had the highest levels of global security and youth who perceived high insecurity across both contexts had the lowest levels of global attachment security. This is to be expected in the sense that such young people experience attachment *security* and *insecurity* with their parents that pervades *both* contexts under investigation in our study and may be more likely to translate into global attachment *security* and *insecurity* and indicative of consistent *security* and *insecurity* respectively. Youth perceiving contextually-different attachment patterns between contexts had moderate levels of global attachment security, with those who experienced *insecurity in sport/security in academics*

demonstrating higher levels of global security than those who perceived *security in sport/insecurity in academic*. This is interesting because we expected that high security in at least one context (regardless of the context) might "protect" or "preserve" global attachment security – but this only seemed to be the case (to a muted extent) for those with *academic security/sport insecurity*. It is important to note (although it is at this stage speculation) that the relative importance of a context may, of course, dictate the extent to which it relates to and impacts global attachment perceptions. For example, it may be that the Taiwanese sample and their families in this study placed more powerful emphasis on academics than sport and their global attachment patterns were therefore more strongly affected by academic context-specifics than by sport. Previous studies (e.g., Chen & Uttal, 1988a, 1988b) on cultural comparison of parental expectations and beliefs in children's academic-related achievement has suggested that Chinese parents seem to place much higher emphasis on academics than American parents and that Chinese youth are more willing to accept their parents' advice and/or care about fulfilling their expectations in academics than American youth. Future studies could explore this further by gauging the relative importance of a given context (e.g., academic, sport) to children and families and the relationship this shares with global attachment perceptions.

In terms of context-specific psychological outcomes, groups with "contextually-consistent security" (across both contexts) and "contextually-consistent insecurity" (across both contexts) had the highest and lowest scores on sport-specific need satisfaction, and the opposite scores for sport-specific need frustration. Youth with contextually-different attachment profiles (i.e., sport security/academic security and sport insecurity/academic security) had moderate scores for both sport-specific need satisfaction and need frustration. It did not seem to be the case that a high security score in a given context preserved psychological needs in that context to the extent that they were as high as for youth with contextually-consistent security. This could suggest that pervasive context-specific patterns of attachment (i.e., attachment patterns that are consistent across both contexts of our study) are a more powerful driver of need satisfaction and frustration in the context of *sport* than are context-specific attachment patterns, which could suggest that a more global sense of security is more powerful than something context-specific. Furthermore, this result seemed also to imply that perceived academic-specific attachment characteristics (i.e., security and insecurity) to some extent could affect their experiences of need satisfaction and need frustration in sport. However, this inference seemed not to apply in youths' experiences of academic-specific need satisfaction. That is, youths with contextually-consistent security *and*

sport insecurity/academic security *both* perceived higher need satisfaction in the context of *academic* than groups with contextually-consistent insecurity *and* sport security/academic insecurity. This result, demonstrating that youths' experiences of academic-specific attachment with parents could have important impacts on shaping their perceived levels of academic-specific need satisfaction whether the quality of sport-specific attachment is good or bad, supporting the idea of context specificity of attachment patterns in the academic domain in relation to academic outcomes.

Furthermore, youths had more positive scores for global psychological need satisfaction and frustration, self-concept, and depression if they exhibited a contextually-consistent secure profile and/or an academic security/sport insecurity profile. This again suggests that a pervasive pattern of security is the most likely to protect psychological outcomes and that security as perceived in the academic context is a more powerful protector of such outcomes than security in the sporting context alone. It is possible that this finding could again be a function of the fact that the *academic* context (and therefore parenting patterns related to this context) has a more powerful relative role in the lives of our sample.

How does variability in attachment security between contexts influence wellbeing?

We only find partial support for the idea that context-specific attachment patterns were strongly connected to context-specific and global outcomes and the results in relation to this issue were rather mixed. However, the significance of within-parent contextual variation in attachment patterns in relation to psychological outcomes may be as much a function of the *degree* of variation between contexts than the qualitative nature of that variation. Our regression analyses permitted exploration of this possibility and provided support for the idea that it may be the degree of variation between contexts that is a more powerful predictor of psychological outcomes for young people. Approximately 80% of our sample reported some degree of difference in within-parent attachment security between contexts and the greater the difference, the higher depression, the higher global frustration, lower global need satisfaction, and lower self-concept they experienced. These findings are interesting to reflect upon because they suggest that *degree* of within-parent contextual variation has a significant impact upon psychological wellbeing.

Girme et al.'s (2018) recent findings provided a strong suggestion that the attachment system is flexible and dynamic with regard to specific attachment figures, revealing that fluctuations in attachment security can be detrimental when they occur over extended time periods. Their study suggested that, particularly for securely attached individuals with

promising beliefs and stable expectations of relationships, fluctuations in attachment security can have "pronounced" impacts on wellbeing because "the inconsistent gauge of attachment figures' availability and responsiveness conflicts with their existing (global) mental representations of attachment security" (p. 417). Our study is an interesting extension to such findings because it suggests that for certain populations and in the context of certain relationships such within-person instability and fluctuation might be understood and illuminated by exploring context-specific differences in attachment behavior and relational dynamics. In certain cultures, children and young people's lives may be organized around clearly defined contexts that to some extent help to demarcate differences in attachment patterns. Whether this is true in different cultures and for different relationship referents remains to be seen.

Limitations and recommendations

While the current study provides some important and useful exploratory data in relation to context-specific, within-person attachment patterns, there are a number of caveats and important points to note for future research. Firstly, we explored the influences of contextual attachment combinations on youths' perceptions of contextual and global psychological outcomes using a cross-sectional/correlational design rather than a longitudinal approach. This is likely to result in the causal hypotheses amongst variables of interest to be questionable because all research variables were measured at the same time point. Future studies are encouraged to employ a longitudinal design allowing that participants' attachment patterns can be assessed at a particular time point before evaluating the relevant outcome variables (at later time points) in order to ensure the causality between cross-contextual parental attachment (predictor) and outcome variables. Furthermore, we also suspect some factors (e.g. the *global* level of child-parent attachment orientations) are likely to potentially confound the influences of the predictors (i.e., youths' contextual attachment combinations, the degree of within-parent contextual variation) on well/ill-being indices. Perhaps the significant predictions found in this study were largely as a result of individuals' perceptions of *global* orientations of attachment, but not perceived *context-specific* patterns. Thus, there is necessary to further consider this issue to show that context-specific attachment matters over and above general attachment tendencies in future studies. For example, researchers may consider to adding the factor of *global* attachment pattern as a control variable into their hypothesized regression models when examining the predictions of contextual attachment characteristics on outcome variables of interest.

Moreover, previous scholars have suggested that individuals are likely to develop separate and independent models of attachment for close partners (e.g., parents, peers, romantic partners) across different developmental stages (e.g., childhood, adolescence, adulthood). Certain relationships might carry more weight in relation to the influence they have on individuals' attachment-related cognition, affect, and behaviours (Collins & Read, 1994). In this study we did not divide our young participants (age from 9 to 17 years) into several age groups representing important developmental stages (e.g., late childhood, aged 9-11 years; early to middle adolescence, 12-14 years; middle to late adolescence, 15-17 years) and to see if any significant differences exist between various age groups when examining our research hypotheses – and that might confound with the current findings. This is an important oversight in this study because a number of research has indicated that adolescence is a crucial period exhibiting substantial fluctuation in child-parent attachment. Adolescents are undergoing several aspects of maturity (such as physical, social, and cognitive changes), these developmental changes are likely to fluctuate the nature and focus of parent-child interactions (e.g., Ainsworth, 1989; Cooper et al., 2013). For instance, adolescents' social networks might extend (e.g., adding the role of peers) as a result of their development of individuation from parents (Hay & Ashman, 2003). Besides, cognitive development (e.g. seeking more autonomy, shared decision-making with parents) may contribute to their critical evaluations of the relationships with parents (e.g., Ruhl et al., 2015, Allen et al., 2004) and their less closeness as well as more conflicts and emotional distance with parents, leading to possible fluctuation in attachment with parents (e.g., Holmbeck, 1996; Steinberg & Morris, 2001; Buist et al., 2002). Therefore, future studies are suggested to extend the version of the current research by considering children's developmental changes in the explorations of within-parent attachment variations across the contexts in relation to youths' psychological outcomes over time.

In addition, previous research (e.g., Ullrich-French et al., 2011; Li, Bunke & Psouni, 2016; Lisinskiene & Juskeliene, 2019) has indicated that boys' attachment schemata with fathers and girls' attachment schemata with mothers are more accessible, applicable, and influential on the prediction of children's wellbeing and domain-specific outcomes. This is probably because father and mother might have different expectations and parenting behaviours on their male and female children's engaging in sport and academics. And these parenting differences might affect girls' and boys' attachment-related perceptions (e.g., how they weigh the importance of engagement of sport/academics, how they weigh the unique importance of, and specific needs from, mother and father in their sport/academics in an

attachment sense). In this study we have asked young participants assigning a particular parent (e.g., mother, father) whom they have considered as an important caregiver substantially involving in their sport and academic lives. Nevertheless, we did not differentiate the pairs of youths and their assigned parent by gender (i.e., boy-father, boy-mother, girl-father, and girl-mother bonds) in the examinations of our research hypotheses. We suspect that various child-parent bonds might be likely to have different impacts on shaping youths' perceptions of psychological well/ill-being. Researchers should be cautious about this issue in future investigations.

Furthermore, the current findings deliver an important message, that is, the contexts of sport and academics could be two influential within-parent socialization platforms responsible for shaping youths' contextual and global psychological outcomes. Notably, youths' perceived academic-specific attachment with parents could have more impact than sport-specific schemata on their psychological outcomes. We thought that these results could be specific to Taiwanese culture. That is to say, Taiwanese parenting beliefs and norms are subject to Confucian value in education, encouraging pupils' high aspirations and excellence in academic achievement in order to achieve decent social status in the future (e.g., Yeh, 2003; Chao, 2000; Chen & Stevenson, 1995). Parents are likely to invest considerable time, effort, and resource (e.g., help out with their schoolwork, provide appropriate home atmosphere for studying, pay for cram schools or tutors, restrict their after-school activities) for the sake of ensuring children's promising future. Parents' emphasising the importance of being successful in academics is likely to result in children placing much more weight on academic performance (compared with sport) and their interactions with parents in regard to academic issues (e.g. more concerns about being appreciated and recognised by their parents). Thus, we suspect the relative importance of attachment representations across different contexts could be recognized and judged by children through their perceptions of parental cultural beliefs and values in specific contexts. And the relative important context-specific attachment schemata (e.g., academic-specific representations within Taiwanese culture) might not only have predominant influences on children's well/ill-being in *that* particular context, but also in other contexts. This current study is substantially grounded in the context of Taiwan; hence, whether these results are likely to generalise to other societies with similar (and/or different) cultural values as Taiwan is still questionable. Scholars interested in cultural comparisons in child-parent attachment are particularly recommended to replicate our research idea to see if the present results could be generalized to other cultural contexts.

Finally, in this study we artificially assumed that the contexts of academics and sport were an adequate reflection of some key contexts that played a significant role in our participants' family lives. This assumption may not be an adequate reflection of what a "context" means to families, cultural groups, and individuals, and it will also be important to explore the nature of the reported contextual differences in this study qualitatively. That is, where children and young people report experiencing parents differently, in an attachment sense, between contexts, what is the nature of such difference? How is it explained and experienced? How is parental behavior different and are parents aware of it? Such qualitative research, we believe, would go a long way to further enhancing this exciting area of attachment research.

Conclusion

Our study provided initial evidence that there may be merit in conceptually and empirically exploring the idea of context-specific attachment. This could be a new, useful, and important avenue of research exploration in the field of attachment and parenting and could have implications for young people's wellbeing and parenting practice. However, as our study also suggested, this avenue of research is fraught with conceptual, methodological, and measurement issues that will need to be carefully considered and addressed by future researchers seeking to move the area forward.

Table 4. Correlations among all attachment-related patterns and psychological-related variables (N=256)

Attachment patterns/ psychological outcomes	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Security in sport	3.97 (0.75)	-													
2. Insecurity in sport	2.07 (0.83)	-.49	-												
3. Security in academics	3.90 (0.74)	.58	-.42	-											
4. Insecurity in academics	2.23 (0.78)	-.34	.59	-.44	-										
5. Security in global	3.74 (0.61)	.54	-.50	.70	-.59	-									
6. Cross-context different in security	0.48 (0.49)	-.23	**.12**	-.30	.20	-.15	-								
7. Satisfaction in sport	3.97 (0.61)	.45	-.27	.41	-.29	.52	**-.12**	-							
8. Frustration in sport	2.19 (0.61)	-.23	.41	-.32	.49	-.48	**.10**	-.56	-						
9. Satisfaction in academics	3.71 (0.65)	.47	-.34	.56	-.42	.61	-.22	.72	-.54	-					
10. Frustration in academics	2.35 (0.66)	-.27	.44	-.40	.56	-.54	**.11**	-.48	.85	-.67	-				
11. Satisfaction in global	3.92 (0.61)	.49	-.34	.55	-.42	.67	-.20	.82	-.52	.83	-.59	-			
12. Frustration in global	2.23 (0.66)	-.28	.45	-.39	.55	-.55	.13	-.47	.87	-.60	.90	-.62	-		
13. Self-concept	1.85 (0.51)	.26	-.36	.31	-.29	.37	-.14	.56	-.38	.51	-.37	.54	-.37	-	
14. Depression	0.53 (0.46)	-.21	.38	-.29	.42	-.42	.16	-.39	.59	-.42	.62	-.42	.63	-.38	-

Note. M (SD): Mean (Standard Deviation). All variables are significantly correlated ($p<.05$), apart from Bold values

Chapter 5 Study 3: Does child-parent attachment in the contexts of sport and academics relate to well/ill-being through unique pathways? The mediating role of context-specific need satisfaction and need frustration

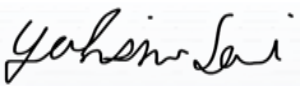
Manuscript submitted for publication at *Journal of Adolescence*

Lai, Y-H., & Carr, S. (2019). Does child-parent attachment in the contexts of sport and academics relate to well/ill-being through unique pathways? The mediating role of context-specific need satisfaction and need frustration. Submitted for publication.

Study 3 based on the findings of study 2 suggesting the individual contribution of different context-specific attachment schemata within a given relationship should be considered because they may each have relatively unique and distinguishable links to adaptive and maladaptive psychological outcomes. This study aimed, grounded on attachment theory and self-determination theory (SDT), to explore the mechanism of how perceived context-specific attachment influences youth's self-concept and depressive symptoms through the mediating role of youths' experiences of need satisfaction and need frustration in specific contexts.

Statement of Authorship

<table>
<tr><td colspan="6">This declaration concerns the article entitled:</td></tr>
<tr><td colspan="6">Does child-parent attachment in the contexts of sport and academics relate to well/ill-being through unique pathways? The mediating role of context-specific need satisfaction and need frustration. Submitted for publication.</td></tr>
<tr><td colspan="6">Publication status (tick one)</td></tr>
<tr><td>draft manuscript</td><td>Submitted (v)</td><td>In review</td><td>Accepted</td><td colspan="2">Published</td></tr>
<tr><td>Publication details (reference)</td><td colspan="5">Lai, Y-H., & Carr, S. (2019). Does child-parent attachment in the contexts of sport and academics relate to well/ill-being through unique pathways? The mediating role of context-specific need satisfaction and need frustration. Submitted for publication.</td></tr>
<tr><td>Candidate's contribution to the paper (detailed, and also given as a percentage).</td><td colspan="5">The candidate contributed to/ considerably contributed to/predominantly executed the...

Ya-Hsin Lai made considerable contributions to the conception of this study and the methodological design (90%). Ya-Hsin Lai predominantly executed the field work, including the acquisition, analysis and interpretation of data for the study (95%). The presentation of the data in journal format was predominantly executed by Ya-Hsin Lai (95%).</td></tr>
<tr><td>Statement from Candidate</td><td colspan="5">This paper reports on original research I conducted during the period of my Higher Degree by Research candidature.</td></tr>
<tr><td>Signed</td><td colspan="2">  </td><td>Date</td><td colspan="2"></td></tr>
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Does child-parent attachment in the contexts of sport and academics relate to well/ill-being through unique pathways? The mediating role of context-specific need satisfaction and need frustration

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Keywords: Psychological need satisfaction and frustration, self-determination theory (SDT), context-specific construct, attachment theory, child-parent relationship, sport, academic, well/ill-being.

Abstract

Whilst attachment characteristics have been recently considered as context-specific structures, especially within parent-child relationships, the associations between contextual parental attachment and youths' psychological outcomes are still unclear. In this study we argue that it is important to consider the individual contribution of different context-specific attachment schemata within a given relationship because they may each have relatively unique and distinguishable links to adaptive and maladaptive psychological outcomes. Grounded on attachment theory and self-determination theory (SDT), we aimed to explore the mechanism of how perceived context-specific attachment influences youth's self-concept and depressive symptoms through the mediating role of youths' experiences of need satisfaction and need frustration in specific contexts. A cross-sectional study was employed in a sample of 256 youth athletes (62% boys, M_{age} = 13.90±2.20) from 21 different sports clubs in 17 primary and secondary in Taiwan. A series of procedures for structural equation modeling were applied to assess two hypothesized mediation models. Results supported our expected primary and cross-context pathways in both of structural models, which (1) perceived sport-specific and academic-specific security can positively influence youths' self-concept through their experiences of need satisfaction in the context of sport and academic respectively (bright pathway), (2) the influence of perceived sport-specific and academic-

specific insecurity on youths' depressive symptoms can be positively mediated by their experiences of sport-specific and academic-specific need frustration separately (dark pathways), (3) cross-contextual effects also can be found in both of the mediation models. Generally, this study expressed an important message, that is, the contexts of sport and academics could be two influential within-parent socialization platforms that concurrently exert unique and context-specific pathways responsible for shaping youths' feelings of need satisfaction and need frustration in both contexts and ultimately linking to well/ill-being. Future studies could consider to further investigate this mediating effect between context-specific attachment characteristics and youths' psychological outcomes in a longitudinal way or to apply a qualitative approach to have a deep understanding of the nature of contextual attachment characteristics and youths' wellness and illbeing.

Introduction

Attachment-related experiences with primary caregivers (normally parents) at early developmental stages (i.e., from infancy until later adolescence) have considerable and prolonged influence on personal growth, interpersonal relationships, and psychological well/ill-being (Bowlby, 1969/1982, 1973, 1982; Mikulincer & Shaver, 2016). However, scant research (e.g., Girme et al., 2018; Lai & Carr, 2018, 2019) has paid attention to the issue of "variation" in attachment security "within" specific child-parent relationships. Recently, Lai and Carr (2018) proposed the idea of context-specific attachment within "child-parent" relationships, extending research (e.g., Gillath et al., 2016) that has explored hierarchical structure within specific relationships to examine whether perceptions of parental attachment representations might vary across the contexts of sport and academics. In study two, we further examined whether the variation in attachment security across contexts affected psychological outcomes. Results were able to identify that greater contextual variation in attachment security within specific child-parent bonds correlated with dampened wellbeing indices.

Based upon Lai and Carr's (2018) conceptualization of parental contextual attachment and findings in study two, the current study sought to explore how context-specific attachment characteristics might influence youths' psychological outcomes through the constructs of context-specific psychological need satisfaction and frustration. This study grounded in Vansteenkiste and Ryan's (2013) self-determination model of need satisfaction and need frustration sought to explore how attachment experiences with a given parent related to well/ill-being through both "primary" and "cross-context" pathways. Specifically,

the primary pathways explored were: (1) a "bright" pathway where perceptions of attachment security in a given context (i.e., sport or academics) would influence well-being (i.e., self-concept) via context-specific need satisfaction as has been documented in previous literature (e.g., Ullrich-French et al., 2011; Felton & Jowett, 2013, 2017; La Guardia et al., 2000; Leak & Cooney, 2001), (2) a "dark" pathway where context-specific attachment insecurity would influence ill-being (i.e., depressive symptoms) via context-specific need frustration (this has been examined less frequently, especially in conjunction with the "bright" pathway) (e.g., Van Petegem et al., 2015; Bartholomew et al., 2011; Felton & Jowett, 2015), and (3) "cross-pathways" (e.g., pathways where context-specific attachment security relates to wellbeing through *lower* context-specific need frustration, or where context-specific insecurity relates to ill-being through *lower* context-specific need satisfaction). We also added another layer of complexity to the investigation of these pathways by exploring whether contrasting contextual attachment experiences with a given parent (e.g., a perceived insecure attachment bond in relation to academics but a perceived secure attachment bond in relation to sport) might offer a protective or sheltering function in relation to wellbeing (e.g., perhaps having a secure parental attachment in the context of sport could buffer the negative effects on wellbeing of an insecure attachment in the context of academics).

Recent studies (e.g., Gillath et al., 2016; Girme et al., 2018; Lai & Carr, 2018, 2019) have started to pay attention to fluctuation in attachment security "within" a specific relationship. For example, the concept of "contextual" attachment representation within child-parent relationships, extending Gillath et al.'s (2016) hierarchical structure (i.e., the levels of global and episodic attachment within a given relationship), was proposed by Lai and Carr (2018). Specifically, "context-specific" working models of attachment were conceptualized as schemata in which one's attachment representations with parents could vary by context and therefore be stored and experienced contextually in a psychological and emotional sense. The contexts of "sport" and "academics" were identified as plausible contexts around which many Western children's lives revolve (Jamber, 1999; Greendorfer & Lewko, 1978; Sage, 1980, Carr & Weigand, 2014; Lai & Carr, 2018) and where parents could transmit context-specific behaviours which might serve as influential "contextual cues" that impact children's perception of parental warmth and associated wellbeing (Fredricks & Eccles, 2004; Eccles et al., 1998; Tofler et al., 2005; Assor et al., 2004; Weigand et al., 2001).

In the context of sport, for instance, children exposed to "performance-oriented" parental motivational climates might be more likely to experience thwarted needs for

autonomy, competence, relatedness, and associated negative emotions (e.g., anxiety, stress, pressure) through controlling and unsupportive parent-child interactions, especially when children are not able to meet parental requirements (Carr & Weigand, 2014). Parental conditional regard (PCR) and achievement by proxy distortion (ABPD) are examples from the literature of controlling parenting practices in achievement-related contexts like sport and academics (e.g., Tofler & Butterbaugh, 2005; Tofler et al., 2005; Baldwin, 1994; Deci & Ryan, 1995; Harter, 1993; Assor et al., 2004; Curran, 2018). PCR has been linked to significant psychological costs (e.g., introjected regulation, unstable self-esteem, negative emotions, poor relationships and well-being, perfectionistic strivings and concerns, and competence contingent self-worth) (Assor et al., 2004; Assor & Tal, 2012; Assor et al., 2014; Curran, 2018). Furthermore, "objectification" of a child has been considered a central mechanism of parental "achievement by proxy" and Tofler et al.'s proposed ABPD spectrum has also been suggested as a mechanism by which children's psychological needs for autonomy, competence, and relatedness are thwarted. We believe that within child-parent relationships, such maladaptive parenting practices could also serve as "contextual cues" that bring about context-specific attachment insecurity with a given parent that may not manifest in other contexts where secure attachment interactions with the same parent may be possible. In study two, we were able to find that 30% of a Taiwanese youth sample revealed contextually-different perceptions of attachment within a given child-parent bond, suggesting that sport-specific and academic-specific attachment-related experiences with a given parent could be distinguished.

Previously, the relationships between (global or relationship-specific) attachment orientations and well/ill-being (e.g., depression, vitality, self-esteem, positive and negative emotion) have been substantially examined in attachment-related literature (e.g., La Guardia et al., 2000; Leak & Cooney, 2001; Carr et al., 2013; Felton & Jowett, 2013, 2015, 2017). However, none (if any) of research has paid attention to the issue of cross-contextual attachment patterns within a particular child-parent relationship. In study two we have initially found that youths perceiving parental attachment "security in sport / insecurity in academics" and "insecurity in sport / insecurity in academics" had lower scores for self-concept and higher scores for depressive symptoms than youths perceiving parental attachment "security in sport / security in academics". In other words, youths of perceived academic-specific parental insecurity related to lower self-concept and higher depression, regardless of whether they also perceived secure or insecure attachment experiences with the same parent in the additional context of sport. Thus, in this current study we argue that it is

important to consider the individual contribution of different context-specific attachment schemata within a given relationship because they may each have relatively unique and distinguishable links to adaptive and maladaptive psychological outcomes.

Previous attachment-related studies (e.g., La Guardia et al., 2000; Leak & Cooney, 2001; Ullrich-French et al., 2011; Felton & Jowett, 2013, 2017) based upon basic psychological needs theory (BPNT; Ryan & Deci, 2002) have mostly used a perspective of "bright side" models to understand the association between attachment styles and wellbeing (especially in the context of sport and physical activity). This idea posits that human wellbeing, growth, and integrity requires specific nutrients in the form of the satisfaction of psychological needs for autonomy, competence, and relatedness. The need for *autonomy* refers to the experience of volition and psychological freedom when engaging in an activity (Ryan & Deci, 2006). The need for *competence* concerns the experience of being confident and effective in dealing with one's environment and achieving desired outcomes (White, 1959). Finally, the need for *relatedness* involves the feeling of being connected with and loved or cared for by significant others (Baumeister & Leary, 1995; Deci & Ryan, 1985).

For example, in the field of sport Felton and Jowett's (2013) study have investigated whether psychological need satisfaction could mediate the association between athletes' attachment styles and sport-specific/global wellbeing indices (i.e., vitality, self-esteem, positive and negative affect, physical self-concept) within the context of parent-athlete relational context. In their study, however, athletes' attachment styles were measured by assessing their self-reporting general experiences within close relationships. Overall, the results of Bootstrap mediation analyses revealed that athletes' experiences of need satisfaction with parents serve as a mediating role (*partial mediator*), especially in the associations between their (general) perceptions of attachment relationships and *global* psychological outcomes. This also means that athletes' *general* experiences within close relationships could have both direct and indirect impacts on their perceptions of *global* well/ill-being. Felton and Jowett's findings might be sensible to explain that a strong and significant relationship existed between individuals' attachment styles and their psychological outcomes in the same (*global*) level of specificity. Their study was similar to the majority of existing studies (e.g., Ullrich-French et al., 2011; Li et al., 2016; Lisinskiene & Juskeliene, 2019; Carr et al., 2013; Wright et al., 2014) investigating the associations between young people and athletes' attachment with parents and their well/ill-being indices in the fields of sport/PA and academics/education tended to test parental attachment patterns on a global-level (either within child/athlete-parent relationships or multiple close

relationships) and use *global* patterns of attachment to predict *context-specific* psychosocial outcomes (e.g., academic/sport-specific BPNS, self-concept). It is important to note that these studies might have an important defect, that is, the so-called *parental* attachment characteristics previously measured might not fully reflect the specificity of *child/athlete-parent working models in the specific contexts of sport and academics* – and this issue is mainly considered in this current study.

Vansteenkiste and Ryan's (2013) proposed SDT-based model on the role of need satisfaction and need frustration provides a theoretical framework for exploration of how contextually-different attachment experiences relate to well/ill-being. The model is based on an integrated viewpoint of psychological "need satisfaction" and "need frustration" and illustrates that both "dark" and "bright" pathways are needed to explain how social environments (e.g., socializing agents as need-supportive or need-thwarting alternatives) contribute to wellness and malfunctioning (Ryan & Deci, 2000). Specifically, being nurtured in a need-supportive context (e.g., parents' responsive and timely care) could be conducive to the enrichment of need satisfaction that benefits wellbeing. However, experiencing contextual need-thwarting (e.g., controlling, critical, rejecting parenting practices) is likely to actively undermine psychological needs (which is quite different from simple low fulfillment of need satisfaction) and evoke ill-being as a result. Vansteenkiste and Ryan (2013) also claim that experiences of contextual need support (as a source of mental nourishment) could buffer detrimental effects (from a need-thwarting context) on perceived need frustration and malfunctioning. Similarly, experiencing contextual maladaptive treatment might lower one's need satisfaction (from a need-supportive context) and obstruct personal growth (refer to Figure 1, Vansteenkiste & Ryan, 2013).

Applying this model to contextual attachment, we argue that the three basic psychological needs (autonomy, competence, and relatedness) in a particular context could be supported by context-specific parenting that reflects a secure attachment pattern involving parental warmth, caring responsiveness, encouragement of initiative and exploration, as well as parental unconditional regard (also see Felton & Jowett, 2013, 2017; Ullrich-French et al., 2011). However, concurrently, one's psychological needs in another context (but with the same parent) could also be frustrated or deprived by context-specific insecure parenting which is controlling, inconsistent, neglectful, and rejecting (see Felton & Jowett, 2015; Bartholomew et al., 2011). Our study two was able to initially evidence that children could have different attachment representations across the contexts of sport and academics within a particular child-parent relationship. And these contextual attachment schemata could have

predominant impact on their pertaining context-specific psychological need satisfaction and need frustration, although *academic-specific* attachment could have more powerful influences on sport-specific need satisfaction beyond *sport-specific* representation did.

Furthermore, previous studies (e.g., Girme et al., 2018) have indicated that within-person variation in attachment security is possible over time and that such variation impacts psychological wellbeing (e.g., relationship satisfaction, depression symptom) because it contributes to a lack of consistency in attachment security. Similarly, our study two extending Girme et al.'s idea explored the associations between within-parent fluctuation in attachment security (i.e., cross-contextual attachment patterns within a particular child-parent relationship) and youths' global psychological well/ill-being. The findings demonstrated that youths perceiving contextually-different attachment (e.g., security in sport and insecurity in academics, insecurity in sport and security in academics) could have significant predictions on their perceived self-concept and depression symptom. And approximately 80% of the young participants reported some degree of difference in within-parent attachment security between the contexts and the greater the difference, the higher depression, higher global need frustration, lower global need satisfaction, and lower self-concept they experienced. These findings are interesting to reflect upon because they suggest that within-parent contextual variation has a significant impact upon *global* psychological wellbeing. Apart from that, several studies have displayed context-specific need satisfaction (e.g., Sylvester et al., 2018; Gunnell et al., 2014; Mack et al., 2011; Adie et al., 2008; Reinboth et al., 2004; Ratelle et al., 2005) and need frustration (e.g., Bartholomew et al., 2011; Balaguer et al., 2012; Mallison & Hill, 2011; Stebbings et al., 2012) could significantly predict both of sport/academics-specific and global well/ill-being. These noteworthy findings inspire this study to investigate the mechanisms of how contextually-different attachment concurrently influences children's optimal and non-optimal functioning in both levels of contextual (i.e., need satisfaction and need frustration) and global (i.e., depressive symptom, self-concept) outcomes. Because we thought it would be helpful for understanding how contextual predictors (i.e., variations in attachment across the contexts and the relevant context-specific need satisfaction and frustration) contribute to one's subsequent (global) psychological outcomes (i.e., depression and self-concept).

In this study we aimed to test two hypothesized models (see Figure 1 and Figure 2): (1) That youths' perceptions of sport-specific attachment security with a given parent could positively influence their self-concept through sport-specific need satisfaction (a "bright" pathway), and that perceived academic-specific attachment insecurity with the same parent

could positively relate to depressive symptoms through the experiences of academic-specific need frustration (a "dark" pathway). Additionally, cross pathways were also tested to explore whether (a) sport-specific security with a given parent could also affect self-concept by buffering the negative impact of academic-specific need frustration (i.e., perhaps sport-specific parenting behaviour "spills over" into other contexts and moderates need satisfaction/frustration in these contexts), and (b) academic-specific insecurity with a given parent could also affect depression by impacting sport-specific need satisfaction, (2) That youths' perceptions of academic-specific attachment security with a given parent could positively influence their self-concept through academic-specific need satisfaction (a "bright" pathway), and that perceived sport-specific attachment insecurity with the same parent could positively relate to depressive symptoms through the experiences of sport-specific need frustration (a "dark" pathway). Additionally, as with the first model, cross pathways were also tested to explore whether (a) academic-specific security with a given parent could also affect self-concept by buffering the negative impact of sport-specific need frustration (i.e., perhaps academic-specific parenting behaviour "spills over" into other contexts and moderates need satisfaction/frustration in these contexts), and (b) sport-specific insecurity with a given parent could also affect depression by impacting academic-specific need satisfaction, The asymmetrical, cross-contextual pathways (i.e., the idea that parental security in a given context would somehow buffer oppositional effects from the same parent but in a different context) were expected to be less powerful than hypothesized symmetrical paths (i.e., the idea that attachment security in a given context would influence need satisfaction and frustration in that same context).

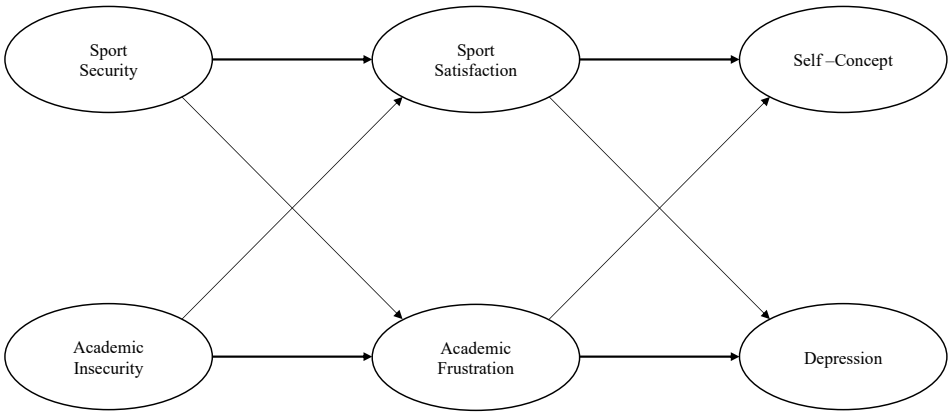

Figure 1. Graphical representation of the hypothesized model depicting the cross-paths from sport-specific attachment security and academic-specific attachment insecurity to self-concept and depression through sport-specific need satisfaction and academic-specific need frustration in the full model.

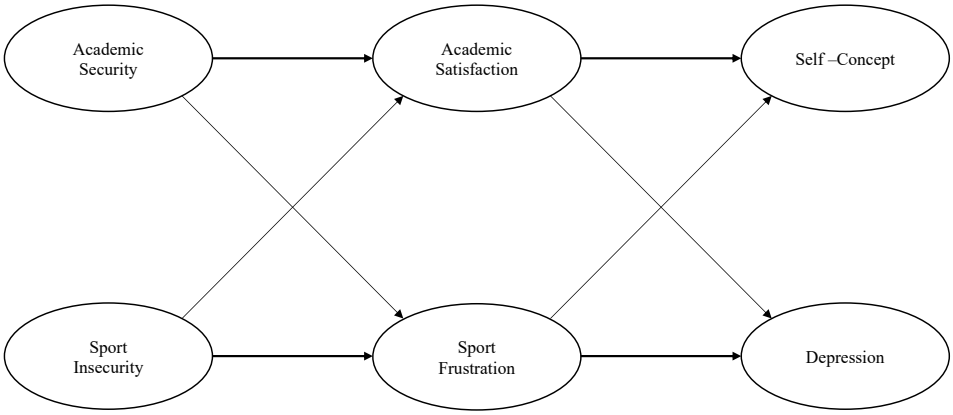

Figure 2. Graphical representation of the hypothesized model depicting the cross-paths from academic-specific attachment security and sport-specific attachment insecurity to self-concept and depression through academic-specific need satisfaction and sport-specific need frustration in the full model.

Method

Participants and procedures

A sample of 275 youth athletes in Taiwan were recruited during the second semester of the school year and/or summer training sessions. The period of data collection for study two was approximately four months (from May to August). The same selection criteria presented in study two were also applied for this study. After screening out 19 ineligible cases and invalid responses (i.e., fast and repeat responses), 256 valid surveys (a 93% return rate) with signed consent were secured from 17 schools and 21 different sports clubs (age range = 9 – 17 years; 62% boys, M_{age} = 13.90±2.20). Youth participants represented their sports at four levels including club (18.4%), county/district (9.4%), national (67.6%), and international (4.7%) levels. 22.7 % of youth athletes have involved in their current sport between six months and one year, 77.3% of them have participated in their sport above one year. Youths reported spending a mean number of 16.89hr (SD = 10.45) in involving sport-related activities (e.g., training, competitions) per week during term time and 31.52hr (SD = 13.93) per week during off-term time. 8.4% of parents have involved in their children's sport as a coach and 15.6% of parents had previously engaged in the same sport (as athletes) as their children's current sport. 23.8% of youth athletes indicated they have won personal prize money in their current sport. According to Tabachnick and Fidell's (2013) suggestions, the criterion of $p < .001$ with degrees of freedom was applied for investigating multivariate outliers with Mahalanobis distance. No further outliers among 256 cases were detected. Participants were recruited to achieve a balance between rural and urban areas and between

seven major cities in Taiwan. This study was carried out in accordance with the recommendations of British Educational Research Association (BERA) guidelines, University of Bath ethics committee with written informed consent from all subjects. Written informed consent was obtained from the parents/legal guardians of all participants. The protocol was approved by the University of Bath ethics committee.

Measures

Contextual child-parent attachment

The Traditional-Chinese version of the Contextual Attachment Scale in Sport (CAS-S) and Academic (CAS-A) developed and validated in study one was employed to measure youths' perceptions of context-specific attachment representations to an assigned parent. The version of CAS-S contained 7 items in total with 3 items were designed to measure youth's *secure* attachment and 4 items to measure *insecure-avoidant* attachment. This sport-version scale satisfactorily met the recommended cut-off points of the goodness of fit indices: χ^2 = 24.90 ($p < .05$), NC (χ^2 / df) = 1.92, NFI = 0.96, CFI = 0.98, IFI = 0.98, RFI = 0.93, SRMR = 0.04, RMSEA = 0.06. The version of CAS-A contained 8 items in total with 4 items were designed to evaluate *secure* attachment style and 4 items to measure an *insecure* attachment. This academic-version scale also met the recommended cut-off points of the goodness of fit indices: χ^2 = 24.90 ($p < .05$), NC (χ^2 / df) = 1.92, NFI = 0.96, CFI = 0.98, IFI = 0.98, RFI = 0.93, SRMR = 0.04, RMSEA = 0.06.χ^2 = 34.77 ($p < .05$), NC (χ^2 / df) = 1.93, SRMR = .04, NFI = .95, CFI = .98, IFI = .98, RFI = .93, RMSEA = .06. In both of scales, youth participants were asked to indicate how much they agree with each statement as it reflects your feelings in the context of sport and academics on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Total sport-specific and academic-specific attachment security and insecurity scores were therefore calculated by averaging the sum of items in each of the separate subscales.

Sport-specific and academic-specific psychological need satisfaction and need frustration

Youth participants' perceptions of need satisfaction and frustration *in the contexts of "sport" and "academics"* were measured with an adapted (Simplified-Chinese) version of the Basic Psychological Need Satisfaction and Frustration Scale (BPNSF; Chen et al., 2015). The BPNSF is a 24-item self-report questionnaire composing six 4-item subscales (autonomy satisfaction, autonomy frustration, competence satisfaction, competence frustration, relatedness satisfaction, relatedness frustration). Considering the differences of word usage

between Taiwan and Mainland China, and the readability for age 9-10 youth athletes (all participants in Chen et al.'s study were aged 17-18), we slightly reworded the items in the Traditional-Chinese version to fit common Taiwanese expressions. All items were then reviewed by a group of psychologists, school teachers/coaches, and younger athletes to refine any difficult items. In order to facilitate participants to imagine and differentiate their sport-specific and academic-specific experiences in the items, two stems ("When I participate in sport…" and "When I am involved in academic-related activities…") were added and then followed by each item (e.g., "I feel capable at what I do") on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Hence, in effect, participants were expected to respond to each item by comparing the two different contexts of sport and academics and by rating each context for each item. Total sport-specific and academic-specific need satisfaction and need frustration scores were then calculated by averaging the sum of the subscale items in the BPNSF for each context. The Cronbach's α values for youths' need satisfaction and frustration in the context of sport (.89 and .83) and academics (.90 and .85) were internally consistent.

Global self-concept and depression

A valid Traditional-Chinese version (Hung, Chen, & Juo, 2008) of *the Beck Youth Inventories-II for Children and Adolescents* (J. Beck, A. Beck, Jolly, & Steer, 2005), was used to assess current self-reported symptoms of depression and self-concept among the youth athletes. Specifically, five inventories are included in the BYI-II to separately or in combination evaluate children's and adolescents' (age range from 7 to 18 years) *depression, anxiety, anger, disruptive behaviour, and self-concept*. Each inventory contains 20 items about thoughts, feelings and behaviours associated with emotional and social impairment in youth. For the purpose of the current study, only the Beck Depression Inventory (BDI-Y) and the Beck Self-Concept Inventory (BSCI-Y) were used to assess youths' negative and positive thoughts. Youth participants were asked to rate each symptom on a 4-point Likert scale ranging from 0 (never experienced) to 3 (always experienced). A total depression and self-concept score was then respectively calculated by summing the subscale items and transferring them to T scores (varied according to gender and age). The Cronbach's α values were .93 for the BDI-Y and .92 for the BSCI-Y.

Analytic strategies

Structural equation modelling (SEM) based on maximum likelihood estimation with 5000 bootstrap samples in Amos Version 24.0 (Arbuckle, 2016) was used to test the two theory-based models (see Ryan & Deci, 2000a; Vansteenkiste and Ryan, 2013), specifying paths from perceived context-specific attachment characteristics, via perceptions of context-specific need satisfaction and need frustration, toward well/ill-being. The adequacy of the measurement and structural models were evaluated by several goodness of fit indices recommended by Hu and Bentler (1999), Marsh, Hau, and Wen (2004) and Marsh (2007). A non-statistically significant chi-square ($\chi 2$) value ($p > .05$) and NC ($\chi 2$ / df) between 1 to 3 demonstrated a good model fit. The goodness-of-fit index (GFI), comparative fit index (CFI), relative fit index (RFI), and non-normed fit index (NNFI) greater than 0.90, and the root mean square error of approximation (RMSEA) and the standardized root-mean-square residual (SRMR) less than 0.8 indicated the models had an adequate model fit.

Prior to the assessment of two hypothesized mediation models, total effects (without mediators) were firstly estimated through two structural models with paths (1) from the contextual attachment patterns (perceived sport-specific security and academic-specific insecurity) directly to self-concept and depression, and (2) from the contextual attachment patterns (perceived sport-specific insecurity and academic-specific security) to self-concept and depression. Next, two full mediation models were then examined by adding mediators (perceived context-specific need satisfaction and need frustration), which included two main (symmetrical) pathways in each of the two models: (1) One indirect pathway from perceived sport-specific security to self-concept via sport-specific need satisfaction, and the other pathway from academic-specific insecurity to depression via academic-specific need frustration (see Figure 1), and (2) One indirect pathway from perceived academic-specific security to self-concept via academic-specific satisfaction, and the other path from sport-specific insecurity to depression via sport-specific need frustration (see Figure 2). All other possible indirect (asymmetrical) pathways (e.g., from academic security to self-concept via sport insecurity) were also tested.

In Amos, the built-in *user-defined estimands* (Arbuckle, 2016) was used to calculate the statistical significance of the specific indirect effects of two standardized regression coefficients ($\alpha\beta$), where the relationships between the independent variables (i.e., context-specific attachment patterns) and the mediators (i.e., context-specific need satisfaction and need frustration) were represented by α, and the relationships between mediators and dependent variables (i.e., self-concept, depression) were indicated by β. Additionally, the

correlations between sport-specific attachment security and academic-specific attachment insecurity, between sport-specific insecurity and academic-specific security were also included in the structural models. Each of proposed pathways and mediation effects were considered statistically significant when their 95% bias-corrected bootstrapped confidence interval did not include zero (Hayes & Scharkow, 2013; Cerin & MacKinnon, 2008).

Results

Preliminary analyses

The means, standard deviations, and bivariate correlations for all variables are presented in Table 1. The mean scores, for security in sport and security in academics were above the midpoint of the response scales, for insecurity in sport and insecurity in academics were below the midpoint of the response scales, suggesting that on average, the current youth participants were securely attached with a given parent across both of the contexts. Moreover, the mean scores, for need satisfaction in sport and need satisfaction in academics were above the midpoint of the response scale, for need frustration in sport and need frustration in academics were below the midpoint of the response scales, indicating that the present sample's experienced psychological needs were relatively satisfied within sport and academics. Interesting to note, on average, the sample in this study experienced higher security and need satisfaction, lower insecurity and need frustration within the context of sport than academics. Furthermore, the mean scores for self-concept and depression indicated that youth participants in this study perceived higher self-concept and lower depressive symptom on average. Bivariate correlations were computed to evaluate the associations between the variables and statistically significant correlations were found among all variables.

Considering some of our study variables might be varied by gender (refer to similar studies in the context of physical education, such as Haerens et al., 2015; Behzadnia et al., 2018), a one-way MANOVA was conducted to examine gender effects on the 10 study variables. Results indicated significant multivariate gender effect (Wilk's $\Lambda = 0.89$, $F_{(10, 245)} = 3.15$, $p = .001$; $\eta 2 = .11$). Univariate tests were significant for need satisfaction in sport ($F_{(1, 254)} = 5.73$, $p < .05$; $\eta 2 = .02$), self-concept ($F_{(1, 254)} = 11.46$, $p = .001$; $\eta 2 = .04$), and depression ($F_{(1, 254)} = 10.83$, $p = .001$; $\eta 2 = .04$). Boys had higher scores on need satisfaction in sport (in line with Haerens et al.'s study, 2015) and overall self-concept but lower scores on depressive symptoms than girls (this opposite to Behzadnia et al.'s findings on well/ill-being, 2018) (see Table 1 for means and standard deviations). Given that gender differences

existed for some study variables, multiple-group (males vs. females) comparisons of full models were also utilized in evaluating whether the hypothesized models were insignificant by gender in the primary analyses.

Primary analyses

All variables were screened for outliers, normality, linearity, homogeneity tests, singularity, and multicollinearity diagnostics (Tabachnick & Fidell, 2013). A series of procedures for structural equation modelling was applied to assess the hypothesized mediation pathways. Before the assessment of the hypothesized pathways, total effects (without mediators) through two structural models were tested. One model with pathways from perceived sport-specific security and academic-specific insecurity directly to self-concept and depression revealed an acceptable fit to the data, χ^2 (85) = 207.96, p< .001; CFI = 0.95; RMSEA = 0.07; SRMR = 0.08. The total effects in Table 2 show that all direct relationships, except for the relationship between sport-specific security and depression, were significant. Similarly, the other structural model with paths from academic-specific security and sport-specific insecurity directly to self-concept and depression also indicated an acceptable fit, χ^2 (99) = 170.90, p< .001; CFI = 0.97; RMSEA = 0.05; SRMR = 0.08. Table 3 demonstrated that all direct relationships were significant.

Hypothesis 1: *Youths' perceptions of sport-specific attachment security could positively influence their self-concept through sport-specific need satisfaction, and that perceived academic-specific attachment insecurity could positively relate to depressive symptoms through the experiences of academic-specific need frustration*

To test this hypothesized mediation model, we then added sport-specific need satisfaction and academic-specific need frustration as mediators to evaluate the expected symmetrical pathways from perceived context-specific attachment patterns through context-specific need satisfaction and need frustration (indirect path α) to self-concept and depression (indirect path β). All six latent constructs and 71 indicators yielded an unidentified model, χ^2 (2485) = 10953.65, p< .001. As the initial results were not ideal, we then adopted Little, Cunningham, Shahar, & Widaman's (2002) item parcelling strategies for progressing our following analyses. Little et al. (2002) suggested that item parcelling is conducive to improve poor model fit because fewer parameters are needed to define a construct, therefore, parcels are normally preferred especially when parameters are large and sample sizes are relatively

small. According to their suggestions, latent constructs for context-specific need satisfaction and need frustration were estimated based on three (theory-driven indicators: competence, autonomy, and relatedness) four-item parcels respectively. Latent constructs for self-concept and depression were represented by four (indicators) five-item parcels created by combining higher loading items with lower loading items from the same scale (refer to the techniques of *item-to-construct balance* for building parcels, Little et al., 2002). Furthermore, the three items from the subscale of security in the CAS-S were directly used as indicators for the latent structure of perceived sport-specific attachment security and the four insecurity items in the CAS-S were represented as indicators for the factor of perceived sport-specific attachment insecurity. Similarly, latent construct for perceived academic-specific attachment security and perceived academic-specific attachment insecurity were also separately indicated by the four security items and four insecurity items in the CAS-A scale.

Results of the structural model in Figure 3 revealed a good fit, χ^2 (178) = 402.69, p< .001; CFI = 0.93; RMSEA = 0.07; SRMR = 0.07. Furthermore, the result of multiple-group comparison also confirmed that no significant difference by gender existed in this hypothesized model, $\Delta\chi$ = 20.18 (19), p = .15. In this full model, the significant direct relationships between sport-specific security and self-concept, between academic-specific insecurity and self-concept and depression, no longer existed (see the differences between total effect and direct effect in Table 2). Notably, the results revealed that four expected pathways were significantly mediated by context-specific need satisfaction and need frustration (refer to Figure 3 and Table 2). Specifically, two primary paths demonstrated that sport-specific need satisfaction could mediate the relationships between perceived sport-specific security and self-concept ($\alpha\beta$ = .23, 95% CI_{BC} [.05, .20]), and that academic-specific need frustration could mediate the relationship between perceived academic-specific insecurity and depression ($\alpha\beta$ = .48, 95% CI_{BC} [.20, 6.21]).

Hypothesis 1a & 1b: *Youths' perceptions of sport-specific security could affect self-concept by buffering the negative impact of academic-specific need frustration and academic-specific insecurity could affect depression by impacting sport-specific need satisfaction*

Results revealed that two cross pathways specified that the relationship between perceived academic-specific insecurity and self-concept could be mediated by sport-specific need satisfaction ($\alpha\beta$ = -.12, 95% CI_{BC} [-.30, -.10]) and academic-specific need frustration ($\alpha\beta$ = -.15, 95% CI_{BC} [-2.80, -.10]). In line with our expectation, Figure 3 demonstrated that

the significant indirect effects (α and β) on symmetrical pathways were all greater than those on cross pathways, as well as a significantly negative relationship between perceived sport-specific attachment security and academic-specific insecurity (β = -.45, 95% CI_{BC} [-.61, -.26]).

Hypothesis 2: *Youths' perceptions of academic-specific attachment security could positively influence their self-concept through academic-specific need satisfaction, and that perceived sport-specific attachment insecurity could positively relate to depressive symptoms through the experiences of sport-specific need frustration*

To test this hypothesized mediation model, we then added academic-specific need satisfaction and sport-specific need frustration as mediators to evaluate the expected symmetrical pathways from perceived context-specific attachment patterns through context-specific need satisfaction and need frustration (indirect path α) to self-concept and depression (indirect path β). All six latent constructs and 72 indicators also demonstrated an unidentified model, χ^2 (2556) = 142168.80, p< .001. Little et al.'s (2002) item parcelling strategies were then adopted for progressing the subsequent analyses (refer to abovementioned section). The analyses of the structural model in Figure 4 resulted in a good fit, χ^2 (198) = 366.80, p< .001; CFI = 0.95; RMSEA = 0.06; SRMR = 0.07. Furthermore, multiple-group comparison also indicated that gender differences in this hypothesized model were insignificant, $\Delta\chi$ = 33.54 (26), p = .15. In this full model, the significance of direct relationships between academic-specific security and self-concept, between sport-specific insecurity and self-concept and depression did not exist (see the differences between total effect and direct effect in Table 3). Six expected pathways from context-specific attachment patterns to self-concept and depression were significantly mediated by context-specific need satisfaction and need frustration. Specifically, two symmetrical pathways existed: (1) from perceived academic-specific attachment security to self-concept, mediated by academic-specific need satisfaction (αβ = .23, 95% CI_{BC} [.10, .22]), and (2) from perceived sport-specific insecurity to depression, mediated by sport-specific need frustration (αβ = .28, 95% CI_{BC} [.10, .37]).

Hypothesis 2a & 2b: *Youths' perceptions of academic-specific security could affect self-concept by buffering the negative impact of sport-specific need frustration, and that sport-specific insecurity could affect depression by impacting academic-specific need satisfaction*

Results revealed that cross pathways existed: (1) between perceived academic-specific security and depression, mediated by sport-specific need frustration ($\alpha\beta$ = -.23, 95% CI_{BC} [-.20, .10]), (2) sport-specific need frustration could mediate both relationships between sport-specific insecurity and self-concept ($\alpha\beta$ = -.13, 95% CI_{BC} [-.10, -.05]) and depression ($\alpha\beta$ = .28, 95% CI_{BC} [.10, .37]), and (3) between sport-specific insecurity and self-concept, mediated by academic-specific need satisfaction ($\alpha\beta$ = -.07, 95% CI_{BC} [-.05, -.02]). In Figure 4, it is also demonstrated the significant indirect effects (α and β) on symmetrical pathways were all greater than those on cross pathways. A significant negative relationship between perceived sport-specific attachment security and academic-specific insecurity (β = -.35, 95% CI_{BC} [-.51, -.19]) also existed.

Table 1. Correlations among all attachment-related patterns and psychological-related variables (N=256)

Attachment patterns/ psychological outcomes	Total sample M (SD)	Males M (SD) n=159	Females M (SD) n=97	1	2	3	4	5	6	7	8	9	10
1. Security in sport	4.08 (0.75)	4.16 (0.77)	3.96 (0.71)	-									
2. Insecurity in sport	1.92 (0.79)	1.94 (0.79)	1.90 (0.78)	-.38	-								
3. Security in academics	4.00 (0.72)	4.07 (0.70)	3.89 (0.74)	.53	-.35	-							
4. Insecurity in academics	2.11 (0.77)	2.09 (0.76)	2.15 (0.79)	-.34	.54	-.46	-						
5. Satisfaction in sport	4.00 (0.62)	4.07 (0.63)	3.88 (0.62)	.48	-.20	.43	-.29	-					
6. Frustration in sport	2.20 (0.63)	2.18 (0.61)	2.23 (0.65)	-.30	.43	-.39	.52	-.58	-				
7. Satisfaction in academics	3.75 (0.67)	3.78 (0.71)	3.70 (0.68)	.42	-.31	.55	-.44	.67	-.53	-			
8. Frustration in academics	2.30 (0.67)	2.28 (0.65)	2.35 (0.71)	-.31	.45	-.41	.60	-.50	.84	-.70	-		
9. Self-concept	1.95 (0.48)	2.03 (0.49)	1.83 (0.43)	.23	-.23	.32	-.26	.48	-.35	.50	-.41	-	
10. Depression	0.47 (0.39)	0.41 (0.35)	0.57 (0.43)	-.27	.40	-.38	.44	-.38	.58	-.46	.64	-.45	-

Note. Mean (Standard Deviation). All variables are significantly correlated ($p<.01$).

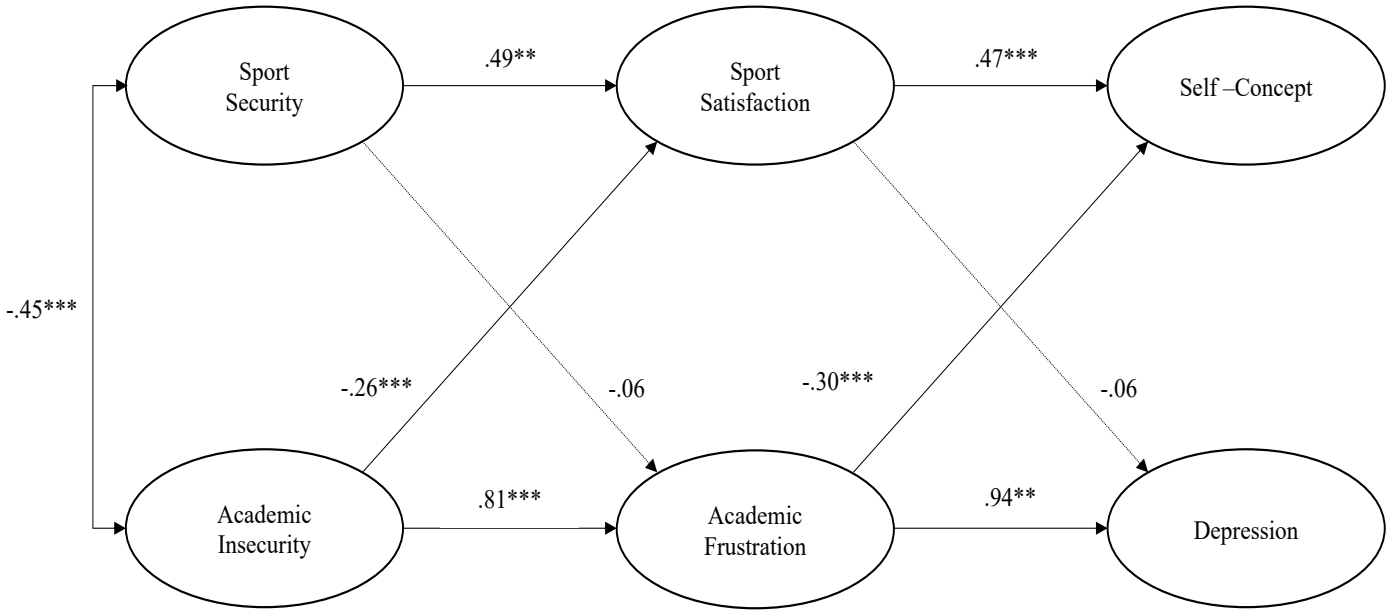

FIGURE 3. Graphical representation of the standardized regression weights (α and β) from sport security (sport-specific attachment security) and academic insecurity (academic-specific attachment insecurity) to self-concept and depression through sport satisfaction (sport-specific need satisfaction) and academic frustration (academic-specific need frustration) in the full model, except for the insignificantly direct relationships between context-specific attachment patterns and outcome variables.

Table 2. Multiple-mediator model from sport-specific security and academic-specific insecurity to self-concept and depression through sport-specific need satisfaction and academic-specific need frustration (N=256)

	Total effect (γ) 95% CI_{BC}	Direct effect (γ) 95% CI_{BC}	Sport-specific need satisfaction			Academic-specific need frustration			Sum of indirect (αβ) 95% CI_{BC}
			α-coefficient 95% CI_{BC}	β-coefficient 95% CI_{BC}	Specific indirect (αβ) 95% CI_{BC}	α-coefficient 95% CI_{BC}	β-coefficient 95% CI_{BC}	Specific indirect (αβ) 95% CI_{BC}	
Sport security									
Self-concept	.16** (-.08, -.35)	-.09 (-.36, .39)	.49** (.28, .70)	.47*** (.25, .68)	.23** (.05, .20)	-.06 (-.32, .17)	-.30*** (-.47, -.12)	.02 (-.40, .01)	.25 (-.20, .25)
Depression	-.09 (-.29, .16)	.00 (-.77, .27)	.49** (.28, .70)	-.06 (-.23, .10)	-.03 (-.07, .05)	-.06 (-.32, .17)	.94** (.63, 1.97)	-.06 (-.10, .93)	-.09 (-.16, .95)
Academic insecurity									
Self-concept	-.30*** (-.55, -.09)	.41 (-.09, 3.14)	-.26** (-.49, -.01)	.47*** (.25, .68)	-.12** (-.30, -.10)	.81*** (.47, 1.00)	-.30*** (-.47, -.12)	-.15* (-2.80, -.10)	-.27** (-2.40, -.10)
Depression	.51*** (.27, .76)	-.50 (-6.63, .04)	-.26** (-.49, -.10)	-.06 (-.23, .10)	.02 (01, .07)	.81*** (.47, 1.00)	.94** (.63, 1.97)	.48** (.20, 6.21)	.50** (.28, 5.39)

Note: *p≤ .05; **p≤ .01; **p≤ .001. 95% CI_{BC}

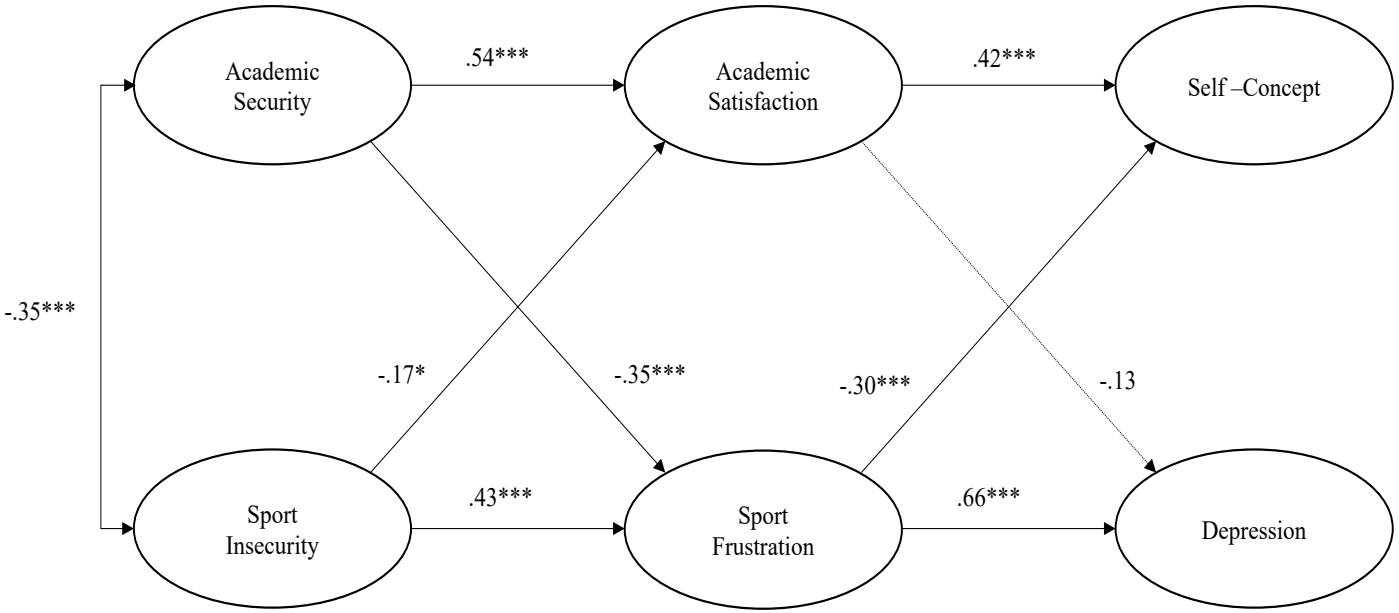

FIGURE 4. Graphical representation of the standardized regression weights (α and β) from academic security (academic-specific attachment security) and sport insecurity (sport-specific attachment insecurity) to self-concept and depression through academic satisfaction (academic-specific need satisfaction) and sport frustration (sport-specific need frustration) in the full model, except for the insignificantly direct relationships between context-specific attachment patterns and outcome variables.

Table 3. Multiple-mediator model from academic-specific security and sport-specific insecurity to self-concept and depression through academic-specific need satisfaction and sport-specific need frustration (N=256)

	Total effect (γ) 95% CI_{BC}	Direct effect (γ) 95% CI_{BC}	Academic-specific need satisfaction			Sport-specific need frustration			Sum of indirect (αβ) 95% CI_{BC}
			α-coefficient 95% CI_{BC}	β-coefficient 95% CI_{BC}	Specific indirect (αβ) 95% CI_{BC}	α-coefficient 95% CI_{BC}	β-coefficient 95% CI_{BC}	Specific indirect (αβ) 95% CI_{BC}	
Academic security									
Self-concept	.29*** (.13, .43)	-.05 (-.26, .14)	.54*** (.40, .69)	.42*** (.18, .64)	.23*** (.10, .22)	-.35*** (-.50, -.20)	-.30*** (-.49, -.10)	.11*** (.05, .15)	.34*** (.15, .30)
Depression	-.29*** (-.42, -.16)	.01 (-.13, .26)	.54*** (.40, .69)	-.13 (-.27, .00)	-.07 (-.05, .10)	-.35*** (-.50, -.20)	.66*** (.49, .84)	-.23*** (-.20, .10)	-.30*** (-.20, -.15)
Sport insecurity									
Self-concept	-.18* (-.34, -.03)	.05 (-.13, .26)	-.17* (-.33, -.01)	.42*** (.18, .64)	-.07* (-.05, -.02)	.43*** (.27, .59)	-.30*** (-.49, -.10)	-.13*** (-.10, -.05)	-.20*** (-.25, -.10)
Depression	.34*** (.19, .48)	.02 (-.20, .19)	-.17* (-.33, -.01)	-.13 (-.27, .00)	.02 (00, .03)	.43*** (.27, .59)	.66*** (.49, .84)	.28*** (.10, .37)	.30*** (.12, .37)

Note: *p≤ .05; **p≤ .01; **p≤ .001. 95% CI_{BC}

General discussions

In both hypothesized models (see Figure 1 and 2) the significant direct associations between context-specific attachment patterns and well/ill-being no longer existed after the mediators were added (full mediation), which implies that the influence of perceived context-specific attachment security/insecurity in relation to self-concept and depression could be mediated through context-specific need satisfaction and need frustration. This result is in line with Vansteenkiste and Ryan's (2013) claims about the importance of both need satisfaction and need frustration in understanding the mechanism by which attachment characteristics connect to psychological outcomes. Interestingly, existing research (e.g., Felton & Jowett, 2013; Ullrich-French et al., 2011) testing this mediation effect using *global* child-parent (athlete-coach) attachment as an antecedent variable and *global* psychological indices as outcome variables could find both *partial* (direct and indirect effects) mediations, which is different from the present study which adopted a *contextual* approach to child-parent attachment. It might make sense that the direct effects between contextual-level attachment antecedents (e.g., sport-specific attachment insecurity) and global-level outcomes (e.g., depressive symptoms) would be weaker than between global-level antecedents and global-level outcomes. We suggest future research is needed to apply a *contextual* approach to further examine this mediation model. For example, perhaps perceived context-specific attachment could affect one's psychological outcomes in specific contexts through context-specific need satisfaction and need frustration. That is, perhaps more direct associations between context-specific attachment and psychological outcomes would be found if the outcomes too were context-specific.

The results of both mediation models are consistent with our hypothesized pathways of "bright" and "dark" sides. *In the bright paths*, youths' perceived sport-specific attachment security had positive association with their self-concept through the experiences of need satisfaction in sport ($\alpha\beta = .23$), and *in the dark paths* perceived academic-specific insecurity significantly related to depression through need frustration in academics ($\alpha\beta = .48$) (see Figure 3). Similarly, *the bright paths* in Figure 4 demonstrated that academic-specific attachment security related to youths' self-concept through need satisfaction in academics ($\alpha\beta = .23$). *The dark paths* also illustrated that youths' perceptions of sport-specific insecurity could significantly contribute to their depression through the experiences of need frustration in sport ($\alpha\beta = .28$). These findings, as we expected, supported Vansteenkiste and Ryan's (2013) conceptualized model, although in this study the mediation effects in the *dark*

paths are higher than in the *bright* paths, which are opposite to previous findings in the domain of teaching (especially for physical education) (e.g., Behzadnia et al., 2018; Haerens et al., 2015). Furthermore, our results imply that context-specific attachment *security* and *insecurity* could be considered as two distinct socializing practices that concurrently shape distinct context-specific patterns of need satisfaction/frustration through need-supportive and need-thwarting parenting practices in order to affect well/ill-being.

What is more, there are some interesting insights to discuss when discussing the cross pathways in the two hypothesized models (Figure 1 and 2). Namely, apart from the primary pathways, we found some expected asymmetrical pathways (two cross paths in Figure 3, four cross paths in Figure 4) which also partially support our proposed mediation models and previous research (e.g., Behzadnia et al., 2018; Haerens et al., 2015; Van Petegem et al., 2015). Specifically, perceived *academic*-specific attachment security could also benefit youths' self-concept through *lower* need frustration in *sport* (see Figure 4), although this cross-path effect ($\alpha\beta$ = .11) was not as powerful as through *high* need satisfaction in *academics* ($\alpha\beta$ = .23). However, Figure 3 did not demonstrate that perceived sport-specific attachment security could *lower* need frustration in *academics* to benefit one's self-concept. Instead, the results in Figure 3 demonstrated that youths' perceived attachment insecurity in academics could have a more powerful influence on their self-concept via *high* academic-specific need frustration ($\alpha\beta$ = -.15) rather than via *lower* sport-specific need satisfaction ($\alpha\beta$ = -.12), which was in line with the cross pathways in Figure 4. That is, perceived attachment insecurity in sport could have a more powerful effect on self-concept through *high* sport-specific need frustration ($\alpha\beta$ = -.13) than through *lower* academic-specific nee satisfaction ($\alpha\beta$ = -.07).

Overall our results indicated that the contexts of sport and academics could be two influential within-parent socialization platforms, whilst youths' attachment experiences in academics is more prevailing than in sport, that exert unique and context-specific pathways responsible for shaping youths' feelings of need satisfaction and need frustration in both contexts and ultimately linking to well/ill-being. We speculate that the measurement of context-specific parental attachment employed in this study might partially account for our results. Specifically, in order to prime youth participants to consider a given context when making their responses, instructions were provided that sought to trigger contextual attachment schema with the selected parent (details refer to study one). However, the youths in this study were instructed to recall their attachment-related experiences *over the past six*

months. It is possible that this time period is not long enough for youths to have developed an accurate and enduring contextual perception of parental attachment in a context such as sport (especially whose parents had not been frequently involved). Hence, particularly for the sport-specific attachment patterns, our data may include perceptions of parental sport-specific attachment that had not yet crystalized as strongly and therefore were less powerfully associated with outcomes than the academic-related parent attachment patterns. Future research might explore this possibility further.

Moreover, we also thought that these results showing youths' academic-specific attachment with parents have more impacts than sport-specific schemata on their psychological outcomes might be as a result of Taiwanese parenting culture in pupils' education. That is to say, Taiwanese parenting beliefs and norms are subject to Confucian value in education that promotes the faith of being well-educated in order to attain higher social status in the future, encouraging pupils' high aspirations and excellence in academic achievement (e.g., Yeh, 2003; Chao, 2000; Chen & Stevenson, 1995). Parents might invest considerable time, effort, and resource in their children's education in order to ensure their promising future. Parents' emphasising importance of being successful in academics might lead to children place much more weight in their interactions with parents in relation to academic issues (e.g., more concerns about being appreciated and recognized by their parents (e.g., Braxton, 1999; Chao, 1996; Kim, 2002). Therefore, we suspect academic-specific representations might not only have predominant influences on children's well/ill-being in *that* particular context, but also in other contexts. This present study is substantially grounded in the context of Taiwanese culture, whether these results could be generalized to other societies with similar (and/or different) cultural values as Taiwan is still questionable. Future studies are suggested to consider those salient cultural values embedded in their research contexts. It would be beneficial for researchers to evaluate the generalizability of their research findings.

Future research could also further explore how perceived contextually-different attachment (e.g., security in sport and insecurity in academics) within a particular child-frustration of *specific* needs for *competence, autonomy, and relatedness* in a given context. For instance, Ullrich-French et al. (2011) indicated that perceived (global) attachment security (especially with *mother*) could contribute to one's self-determined motivation and participation in physical activity *only* through context-specific need satisfaction for *autonomy,* but not through other kinds of psychological needs. Their findings seemed to imply that in the context of *physical activity* individuals might be particularly influenced by

the *autonomy* provided from parents (especially mother) and the fulfilment of this context-specific autonomy could be especially conducive to their physical activity-specific motivation and behaviours. We suggest that examining *each* of the psychological needs for competence, autonomy, and relatedness within the structure of context-specific need satisfaction and need frustration within *child-mother* and *child-father* attachment relationships might help to further dissect and explore the patterns identified in this study. It would provide more insights for understanding how perceived contextually-different parental attachment (e.g., in sport and academics) could influence youths' well/ill-being which context-specific basic needs are being fulfilled and/or frustrated by parent (s) (and how). Moreover, although the domains of *sport* and *academics* have been considered as major parental socialization platforms for (school-age) youths in this study, other potential (achievement/non-achievement) contexts that may give rise to different contextual parenting practices and child-parent interactions might be considered for future research.

Chapter 6 Paper 4: Exploring attachment differences across the contexts of sport and academics: A qualitative exploration of child and parent experiences

Study 4 aimed to further understand the nature of the reported contextual attachment within child-parent relationship in the quantitative findings (study one to three) and attachment differences across the contexts of sport and academics through a qualitative exploration of child and parent experiences. Two key research questions were guided for achieving this aim: (1) What are children's experiences of contextual attachment across the contexts of sport and academics? (2) What could explain these contextually-different experiences in relation to children's psychological outcomes? This study is expected to practically provide parenting suggestions and guidance, particularly in the contexts of sport and academics.

Statement of Authorship

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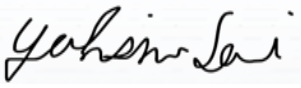
Candidate's contribution to the paper (detailed, and also given as a percentage).	The candidate contributed to/ considerably contributed to/predominantly executed the... Ya-Hsin Lai made considerable contributions to the conception of this study and the methodological design (90%). Ya-Hsin Lai predominantly executed the field work, including the acquisition, analysis and interpretation of data for the study (95%). The presentation of the data in journal format was predominantly executed by Ya-Hsin Lai (95%).				
Statement from Candidate	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature.				
Signed			**Date**		

Exploring attachment differences across the contexts of sport and academics: A qualitative exploration of child and parent experiences

Abstract

While the concept of contextual attachment within child-parent relationship has been recently proposed and explored in relation to children's psychological well/ill-being, existing research only focused on quantitative investigations. It is important to evolve this area of research in a broader sense than self-report alone would permit. This present study was to qualitatively explore the nature of contextual attachment. A theoretically-informed qualitative study involving 15 semi-structured interviews were conducted with four groups of Taiwanese children and parents (paired) with different contextual attachment combinations (i.e., security in both contexts, security in sport / insecurity in academics, insecurity in sport / security in academics, insecurity in both contexts). Data were analysed using a hybrid approach (combining inductive and deductive methods) of thematic analysis. Results shown children's perceived parental timely and sensitive responsiveness as well as empathetic concern relating to children's sport and academic life were two common secure attachment characteristics across the contexts. Contrarily, perceived parental over and unresponsiveness as well as lack of empathetic concerns were two shared insecure attachment features across two contexts. Furthermore, the possible explanations for parents' contextually-different behaviours were (1) parents' over-expectation / sensible expectation on children's ability in academics and that might frustrate / fulfil children's need for competence and autonomy in their academic-related activities, (2) parents' perceptions of interest (enjoyment) / utility value of children's participating in sport and that could be in relation to children's need satisfaction / need frustration for competence and autonomy in children's sport-related activities. The results suggested that if parents could hold sensible expectations on children's ability in academic achievement and value their participating in sport as a personal interest or a way of experiencing enjoyment that might be able to trigger parents' employment of need-supportive strategies to fulfill children's need for competence and autonomy in their sport and academic life. Moreover, parents' sensitive response to, and understanding of, children's feelings and difficulties in times of need are likely to be transferrable well-adapted parenting strategies across different contexts.

Introduction

Bowlby's (1969/1982, 1973) attachment theory has been employed as a broad and integrative framework to explore human wellness across a range of disciplines. This theory was initially conceptualized by categorizing children's interactions with their primary caregivers (normally parents) into three major attachment styles - secure, insecure-anxious, and insecure-avoidant, through Ainsworth et al.'s (1978) research on the Strange Situation. For example, children who have secure attachment relationships with primary caregivers (normally parents) usually hold advantageous working models of successful proximity-seeking and attainment of security as a result of caretakers' attentive, empathic, and supportive responses to their emotional needs, especially during vulnerable moments. Children receiving such secure responses from parents may consider themselves worthy of being loved by others and feel confident and able to seek support and emotional relief from parents when they feel upset, threatened, or stressed (Ainsworth et al., 1978). In contrast, a child classified as insecure-anxious tends to access working models of attachment characterized by hyperactivating to acquire the goal of felt-security. Typically, anxious children's maladaptive attachment behaviours are the reflections of parents' inconsistent, and lack of, responses toward their emotional needs (Ainsworth et al., 1978). Children with insecure-avoidant attachment models tend to deactivate security-seeking behaviour and have typically experienced significant neglect, rejection, and unresponsiveness in relation to proximity-seeking attempts (Ainsworth et al., 1978). Pearce's (2017) C.A.R.E. model also suggested that parenting *consistency* (i.e., how consistently can caregivers provide satisfying and supportive cares in response to children's needs?), *accessibility* (i.e., how availably can caregiver be physically or emotionally in response to children's needs?), *responsiveness* (i.e., how sensitively and accurately can caregivers respond children's needs with understanding?), and *emotional connection* (i.e., affective attunement between caregivers and children) are four major parenting strategies that might distinguish between secure and insecure attachment patterns.

The issue of individuals' fluctuation in attachment schemata have been broadly explored and understood from different perspectives in the literature (Mikulincer & Shaver, 2016; Fraley, 2002; Overall et al., 2003; La Guardia et al., 2000; Lai & Carr, 2018, 2019). For example, Fraley's (2002) meta-analysis in the issue of attachment stability from infancy and adulthood demonstrated a moderate level of association (.39) between attachment orientations across different developmental stages (especially up to 19 years old). This result seems to be in line with other research (e.g., Owen et al., 1995; Fraley & Shaver, 1999;

Shaver et al., 2000) that has found around a moderate correlation between early attachment security with parents and attachment quality in adult relationships, suggesting that prototypical attachment styles do not completely set the tone for attachment through the lifespan. More recently, empirical research in the social psychological tradition has paid much attention on exploring the issue of fluctuation in attachment models across specific relationships (e.g., Davila & Sargent, 2003; La Guardia et al., 2000; Fraley & Davis, 1997; Trinke & Bartholomew, 1997; Collins & Read, 1994; Pierce & Lydon, 2001; Overall et al., 2003; Gillath et al., 2016). For instance, La Guardia et al. (2000) indicated that variability of need satisfaction in different relationships at the within-person level accounted for approximately twice as much variance in attachment variables than between-person variability. Hence, people seem to have different attachment security and models of attachment for the different attachment figures in their networks, and the greater the satisfaction of specific psychological needs in a given relationship then the greater the felt attachment security within that relationship. Such research strongly suggests that attachment security varies across the network of close relationships that individuals develop. Collins and Read (1994) and Overall et al. (2003) have articulated how relationship-specific, domain-specific and global attachment representations work together in a hierarchy of working models within a relational network. They argued that it is likely that people can hold distinct attachment representations for specific relationship referents in their lives (e.g., mother, father, romantic partner) but that these attachment representations are likely to be hierarchical in terms of their fundamental importance and impact on global wellbeing and personality development.

Attachment-related experiences with primary caregivers (normally parents) at early developmental stages (i.e., from infancy until later adolescence) have considerable and prolonged influence on personal growth, interpersonal relationships, and psychological well/ill-being (Bowlby, 1969/1982, 1973; Mikulincer & Shaver, 2016). However, scant research (e.g., Girme et al., 2018; Lai & Carr, 2018, 2019) has paid attention to the issue of "variation" in attachment security "within" specific child-parent relationships. Lai and Carr (2018) proposed the concept of "contextual" attachment representation within child-parent relationships by extending Gillath et al.'s (2016) hierarchical structure (i.e., the levels of global and episodic attachment within a given relationship). More specifically, Gillath et al.'s revised structure has added an additional level of specificity (i.e., episodic schemata) that would be nested underneath the "relationship-specific" attachment models. And they claimed that a person's attachment representations might vary from moment to moment, although

individual interpersonal "moments" or interactions that happen within a specific relationship and somehow share common associations would rise to relationship-specific models. Hence, we believe that even within specific relationships, a multilevel structure might be proposed that includes a generalized model of the given relationship, a model of the given relationship as it is experienced across different contexts, and a state-like fluctuation that functions episodically (refer to Figure 1 in chapter two). These "context-specific" working models of attachment were conceptualized as schemata in which one's attachment representations with parents could vary by context and therefore be stored and experienced contextually in a psychological and emotional sense (Lai & Carr, 2018). Several studies have identified the contexts of "sport" and "academics" as plausible contexts around which many Western children's lives revolve (Jamber, 1999; Greendorfer & Lewko, 1978; Sage, 1980, Carr & Weigand, 2014; Lai & Carr, 2018) and where parents could transmit context-specific behaviours which might serve as influential "contextual cues" that impact children's perception of parental warmth and associated wellbeing (Fredricks & Eccles, 2004; Eccles et al., 1998; Tofler et al., 2005b; Assor et al., 2004; Weigand et al., 2001).

In the context of sport, for instance, children exposed to "performance-oriented" parental motivational climates might be more likely to experience thwarted needs for autonomy, competence, relatedness, and associated negative emotions (e.g., anxiety, stress, pressure) through controlling and unsupportive parent-child interactions, especially when children are not able to meet parental requirements (Carr & Weigand, 2014). Parental conditional regard (PCR) and achievement by proxy distortion (ABPD) are examples from the literature of controlling parenting practices in achievement-related contexts like sport and academics (Tofler & Butterbaugh, 2005a; Tofler et al., 2005b; Baldwin, 1994; Deci & Ryan, 1995; Harter, 1993; Assor et al., 2004; Curran, 2018). PCR has been linked to significant psychological costs (e.g., introjected regulation, unstable self-esteem, negative emotions, poor relationships and well-being, perfectionistic strivings and concerns, and competence contingent self-worth) (Assor et al., 2004; Assor & Tal, 2012; Assor et al., 2014; Curran, 2018). Furthermore, "objectification" of a child has been considered a central mechanism of parental "achievement by proxy" and Tofler et al.'s proposed ABPD spectrum has also been suggested as a mechanism by which children's psychological needs for autonomy, competence, and relatedness are thwarted. We believe that within child-parent relationships, such maladaptive parenting practices could also serve as "contextual cues" that bring about context-specific attachment insecurity with a given parent that may not manifest in other contexts where secure attachment interactions with the same parent may be possible.

In study two (chapter four), contextually-different perceptions of attachment within a given child-parent bond were found in 30% of a Taiwanese youth sample, suggesting that sport-specific and academic-specific attachment-related experiences with a given parent could be distinguished. And youths' attachment experience with parents in academics could have important impacts on shaping their perceived levels of academic-specific need satisfaction whether the quality of sport-specific attachment was good or bad, supporting the idea of context specificity of attachment patterns in the academic domain in relation to academic outcomes. But this was not the case for youths' attachment experiences in sport, demonstrating that their academic-specific attachment experiences could interfere the level of perceived need satisfaction and need frustration in the context of sport. Furthermore, findings in study two also indicated youths had more positive scores for global psychological need satisfaction and frustration, self-concept, and depression if they exhibited an academic security/sport insecurity profile. This seemed to imply that security as perceived in the academic context is a more powerful protector of such outcomes than security in the sporting context alone. It is possible that this finding could again be a function of the fact that the *academic* context (and therefore parenting patterns related to this context) had a more powerful relative role in the lives of youths.

In order to develop a better understanding of how youths' context-specific attachment experiences with parents influence their psychological outcomes (i.e., self-concept, depressive symptoms), study three (chapter five) expanded Vansteenkiste and Ryan's (2013) proposed SDT-based model to explore the unique and distinguishable contributions in relation to the influence of different context-specific attachment schemata on youths' adaptive and maladaptive psychological outcomes (i.e., self-concept, depressive symptoms) through the mediating role of need satisfaction and need frustration in specific contexts. Study three was able to identify that the contexts of sport and academics could be parental socialization platforms that concurrently exert unique and context-specific pathways responsible for shaping youths' feelings of need satisfaction and need frustration in both contexts and ultimately linking to well/ill-being. While results in study three and four have provided some important and useful exploratory data in relation to context-specific, within-person attachment patterns, there are a number of caveats and important points to be further examined in this current study. For example, our validated measurement of context-specific attachment patterns (in study one) might need further development, and qualitative research would be a useful way to explore the ways in which attachment characteristics manifest in specific contexts, giving rise to more context-sensitive measurements. Moreover, the nature

of the reported contextual differences and similarities in our quantitative studies is needed to a deeper qualitative exploration of the meaning and experience of within-person contextual variation in attachment in order to practically provide some parenting suggestions for their daily interactions with children, particularly in the contexts of sport and academics.

Hence, this present study was aimed to understand attachment differences across the contexts of sport and academics through a qualitative exploration of child and parent experiences. The major reason that we considered to interview both of children and their assigned parents was based on the assumption that attachment bonds are normally formed from the regular, consistent, and predictable interactions between care seeker (e.g., children) and care providers (e.g., parents) especially when encountering difficulties or stressed moments. Theoretically, dependent children's experiences of interactions with parents are conducive to their development of the specific attachment schemata constituted of the relevant emotions, cognitions, and behaviours of self and the other. Similarly, parents are conscious and active in engaging attachment-related interactions (i.e., being the role of caregivers) and that should be able for them to develop effective mental representations composed of a series of their perceptions of self's and children's emotional and behavioural responses, in an attachment sense. We suspect that parents' and children's internal working models reflecting their attachment-related interactions should be very similar in general, but also are likely to have discrepancies. Their similarities and differences in attachment representations both could be very meaningful for the better understanding of the nature and characteristics of child-parent attachment. In other words, we thought that it may simply be that parents' and children's perspectives differ - and if they differ, this would have important implications (i.e., how can parents change or alter something they are not aware being perceived by the child in a particular way that they do not perceive themselves?). This would be an added complexity of relational life – and that is a reason to interview both of children and their assigned parents. Therefore, in this current study we intended to interview parent participants (and considered their narratives in the analyses) in order to triangulate youths' responses in interviews and enhance richness and depth of this research. Overall, our study was guided by two key questions: (1) what are children's experiences of contextual attachment across the contexts of sport and academics? (2) what could explain these contextually-different experiences in relation to children's psychological outcomes?

Method

Recruitment

Children and young people were selected as suitable cases by purposive sampling from a sample of 256 youth athletes in Taiwan from 17 schools and 21 different sports clubs in Taiwan (age range = 9 – 17 years; 62% boys, $M_{age} = 13.74 \pm 2.63$) (the sample selected in this study was the same participants recruited in study two). The criteria for recruitment included: (1) Youths had committed to attending the training, practice sessions, and competitions of a given sport, routinely and regularly, for at least one semester (normally 4-5 months); (2) A chosen parent or primary caregiver, assigned by children, who had active and substantial involvement in both of their children's sport and academics-related life for at least one semester (normally 4-5 months); (3)Youths' attachment patterns across the contexts were identified as the following combinations (a) security in sport / insecurity in academics, (b) insecurity in sport / security in academics, (c) security in both contexts, (d) insecurity in both contexts (details of the ways of clustering these contextual attachment patterns refer to authors' previous study); (4) Written informed consents were obtained from selected youths and their parents; (5) Both of parents and youths were willing to take part in separate interviews by telephone. These criteria of selection enabled us to ensure, as far as possible, that we were able to find out the nature of context-specific attachment if sport and academics could be the platforms for the development of child-parent attachment relationships.

This current study was the follow-up of a series of quantitative studies. Thus, the permission for data collection and written informed consent for the follow-up interviews was also acquired from schools as well as parents and youth participants at the same time when we conducted surveys at the first stage of the project. According to the authors' previous findings with regard to contextual attachment combinations (in study two), we were able to initially identify 54 youths who were a good fit in relation to the abovementioned requirements of recruitment. An initial contact, based on the personal contact information written on their consent form, with parents (and then children) by phone calls was made to (1) briefly introduce myself/the lead author and expressed my appreciation for their kind cooperation with my surveys at the first stage of my project, (2) summarise the preliminary results from my surveys and explain the aims of this study, (3) confirm with them about their previously agreement with this follow-up interview, (4) inform their participations were voluntary, free to withdrawal and confidential, (5) inform interviewees (parents and children) a sport-related gift will be given for the compensation of their cooperation if they both completed the interviews. By doing so, I expected to help them to familiarise the nature of

this research project and instigate their motivation to take part in the interviews through building rapport. After considering the balance of children's age and gender, parents' gender, as well as the possibility of being the rich-information source, eight young participants and seven parents were considered to be the suitable cases. Two individual appointments for telephone interviews with each pair of child and parent were scheduled at their preferred time.

Participants

Eight youth (six boys and two girls) and their assigned parent (three fathers and four mothers) were all living together, aside from one male youth having been living with his father since their parents divorced when he was 9 years old (but his mother assigned as the primary caregiver living separately in the same neighbourhood had kept emotionally and physically involving in his sport and academics-related life). Furthermore, one parent was the mother of two children (one boy and one girl) categorized to different attachment combinations being selected for this interview. Youths' ages ranged from 10 to 17 years and all were educated in mainstream schools (i.e., public/state schools) in Taiwan (half of them from urban and the half from rural areas) as well as trained in various sport clubs at school (i.e., powerlifting, woodball, triathlon, pole vault, basketball, table tennis) as national-level athletes. Youths and their assigned parents were all Taiwanese (apart from one mother's original ethnicity is Vietnamese) with Chinese as their primary or current spoken language and able to communicate verbally. Two fathers previously participating the same sports as athletes as their children's current sports had engaged in their children's sports as coaches in the past, but not within the most recent six months. A detailed description of each interviewee based upon their demographic information in the survey of authors' first-stage quantitative research refers to Table 1.

Data Collection and procedures

The ultimate aim of this current study was to understand the nature of contextual differences in child-parent attachment relationship by qualitatively comparing and contrasting to children's perceptions of attachment-related characteristics and their psychological outcomes between the contexts of sport and academics. In order to facilitate the discussions with children and their assigned parents, semi-structured interview questions being developed and compiled firstly by lead author based on attachment theory relevant literature (e.g.,

Bowlby, 1969/1982, 1973; Ainsworth et al., 1978; Cassidy & Shaver, 2002; Pearce, 2017; Mikulincer & Shaver, 2016) were used to guide the conversations with participants (see Table 2). An initial interview questions were examined by a panel of experts with research experiences in conducting qualitative interviews with children in attachment-related topics to review the clarity and content appropriateness as well as provide feedback and suggestions. A revised version of interview questions for children was edited in accordance with experts' suggestions (1) formulating some questions to be more open-ended, (2) preparing follow-up questions and probes between main questions to encourage interviewees to keep talking or share more information (e.g., can you tell me more about that? Can you give me an example?), make clarification (e.g., what do you mean by?), or ask for specific details (e.g., how did that make you feel?) on some particular issues/questions. In addition to interview questions, Rubin and Rubin's (2005) recommended structure of interview was also utilized to plan our interview guides, including introductory/opening questions (i.e., to provide an opportunity to build rapport by introduce my background information, the purpose and rationale of this study, confirm interviewees' demographic information, and know their family background), then main questions, and summary/closing questions (i.e., to ask if they have anything else that would like to say, any kind of final thoughts or anything would like to follow up that I haven't asked before ending).

The revised interview guides (both of parents' and youths' interviews were guided by the same version) were then initially forward-translated into a Traditional-Chinese version by the lead author (Chinese-native speaker) and one English-Chinese certified translator subsequently conducted a backward translation and evaluated the equivalence of original and backward-translated versions respectively. In order to assure the clarity of this Chinese-version guide from interviewees' perspectives as well as become familiar with interview procedure, enhance interviewing skills, and evaluate how much time could be expected for each interview, pilot interviews were subsequently conducted with two mothers and one young participant separately by telephone. The data of these pilots was not included in this study, rather the issues brought about from the feedback of these pilot participants, like social expectation effect, leading words, terminology (e.g., attachment), pace of conversation (e.g., too rush and nervous), were taken into considerations for the process of our main data collection.

All interviews with youths and parents for primary study were individually conducted by telephone for three months which was approximately one month after administrating the quantitative surveys and completing the preliminary analyses for identifying the appropriate

interviewees in the first-stage data collection of authors' project. The main reasons of doing telephone interviews were considering the convenience of accessing to my interviewees who were all living in different geographical areas of Taiwan, the flexibility of time scheduling for participants (especially this data collection was taken place during their busy term time), and to create a relaxed, private, and worry-free platform to talk freely. Although the approach of conducting telephone interview to collect qualitative data might be challenged in building rapport or catching nonverbal cues (Novick, 2008; Holt, 2010; Smith, 2005), Drabble, Trockl, Salcedo, Walker, and Korcha's (2016) recommended strategies (e.g., establishing rapport, being responsive to interviewees' words, communicating regard for interviewees' contribution) for successful doing telephone interviews were applied throughout the whole data collection to avoid these disadvantages.

15 in-depth semi-structured interviews (eight for youths and seven for parents) lasting average 40 minutes with audio taping were conducted individually at each of participants' preferred time as well as comfortable and quiet place (all of them were interviewed in their current living places). To avoid social expectancy effect and provide a private and worry-free conversation, all of young participants were interviewed first (parents were asked to not appear around their child while they were doing interviews), followed by their assigned parents at the same/or separate day. The purpose of interviewing parents was to triangulate youths' responses and also to enhance richness and depth of this research. In the beginning of each interview, interviewees were told that their participation is voluntary, they were free to withdraw at any time. Also, they can just skip any specific questions if they do not feel like to answer. There are no "right or wrong" judgements would be given to their responses. I am more interested in what you think, and any information they provided would be remained confidential. In addition to interview guides (including introductory, main, and closing questions), youths' responses on their previous sport/academic-specific attachment scales (questions see authors' previous validated scales) were also employed as a reference to facilitate them to reflect and compare their feelings and behaviours toward which context-specific relationship with parent by asking why they thought that way when responding some specific questions on the scales. Furthermore, those scales were also regarded as the follow-up questions to clarify their responses in some interview questions which were not in accordance with the answers on previous context-specific attachment scales. Following Charmaz's (2005) suggestion, note taking was used throughout whole process of interviewing to document participants and researcher's thoughts, reactions, and general responses in order to recall interviewees' emotional expressions as to specific questions,

examine researchers' bias, and further refine interview questions during interviews and data analyses.

This study was carried out in accordance with the recommendations of British Educational Research Association (BERA) guidelines, University of Bath ethics committee with written informed consent from all subjects. Written informed consent was obtained from the parents/legal guardians and children/young people of all participants. The protocol was approved by the University of Bath ethics committee.

Analysis and interpretation of data

All of interviews were conducted and completely transcribed verbatim in Chinese, and then sent back to each of participants to initially check accuracy. In order to facilitate researcher's mindset in doing analyses that could be as close as Taiwanese participants' voice and cultural context and avoid data contamination. Data analyses were initially conducted by the lead author based on Chinese-version verbatim transcription. Subsequently, a forward translation into target language (English) was initially done by the lead author at the stage of drafting the results and then one English-Chinese certified translator subsequently conducted a backward translation and evaluated the equivalence of original and backward-translated versions respectively. Data was interpreted by using both of deductive and inductive thematic analyses guided by Boyatzis (1998) and Braun and Clarke (2006) to explore two main research questions: (1) what are children's experiences of contextual attachment across the contexts of sport and academics? (2) what could explain these contextually-different experiences in relation to children's psychological outcomes? A series of steps were employed in the analyses of both questions (a) transcribed data was reiteratively read in detail for familiarisation, and memo writing were used to explore meaningful unit of texts to generalize initial codes, (b) themes were searched and reviewed through identifying illustrative extracts and clusters of codes, (c) themes were than defined and labelled.

A deductive-approach analysis was adopted to explore children's attachment-related experiences across the contexts (the first research question), codes were identified through looking for the evidence that appeared in line with previous theorists' conceptualized attachment-related characteristics (e.g., Bowlby, 1969/1982, 1973; Ainsworth et al., 1978; Cassidy & Shaver, 2002; Pearce, 2017; Mikulincer & Shaver, 2016). Illustrative examples and clusters of codes in each of the separate context of sport and academics were identified to define themes and subthemes respectively from the dataset of all fifteen youth and parent

interviews including the groups of (1) security in sport / insecurity in academics, (2) insecurity in sport / security in academics, (3) security in both contexts, (4) insecurity in both contexts. Initially, the themes and relevant extracts reflecting attachment-associated characteristics (e.g., parents' and children's perceptions of parenting behaviours and children's responses) of *secure* in *both* contexts were critically compared and contrasted in order to understand what the salient or shared parenting merits from exploring the similarities and differences between children's sport and academic life. Subsequently, these *secure* attachment characteristics in specific contexts were then contrasted with children's perceptions in the other *insecure* contexts (namely, secure attachment features in sport contrasted with insecure characteristics in academics). By doing so, we might be able to detect what important parenting differences distinguished children's experienced attachment relationships across contexts. For the second research question, a hybrid approach combining inductive and deductive method was used to seek for the possibilities resulting in children's experienced attachment differences across the contexts and associative psychological outcomes (guided by SDT). This follow-up analysis explored meaningful themes especially emerged from the data of eight interviews with youths and parents of contextually-different attachment relationships (i.e., group 1 and group 2). Trustworthiness of this study was examined by utilizing parents' data as triangulation to increase the validity through verifying children's responses.

Results

In accordance to the ultimate aims of this current research, our analytical strategies focused on exploring the nature of contextual attachment within child-parent relationships through a critical comparison and contrast of attachment-related characteristics between and within emerging themes with illustrative examples in order to provide preliminarily well-adapted parenting suggestions and guidance. In what follows we firstly present and discuss the salient similarities data reflecting secure attachment interactions within two core themes (i.e., *timely and sensitive responsiveness,* and *empathetic concerns*) identified in the context of sport and academics in a tabular format. Those data representing in the secure contexts were then contrasted extracts reflecting insecure attachment behaviours detected in the other contexts within each of the same emergent themes (i.e., *over and lack of responsiveness,* and *lack of empathetic concerns*) respectively. Subsequently, we present data relating to, the themes of *perception of ability beliefs in academics* and *perception of value beliefs in sport* to

help understanding of what could explain these contextually-different attachment experiences in relation to children's perceptions of psychological need satisfaction / need frustration for *competence* and *autonomy* in each of the separate contexts of sport and academics through context-specific (secure/insecure) parenting practices.

Emerging themes

Timely and sensitive responsiveness / over and lack of responsiveness

Child-parent interactions were perceived responsive and reciprocal from both of parents' and children's sides in both contexts. However, no significant and salient differences in secure attachment-related behaviours across these two contexts could be found. These evidences shown that secure child-parent attachment associative characteristics between the contexts of sport and academics seemed to share some similarities. For example, in the context of sport, children were more willing and freely to share or talk over their sport-related things with parents because they perceived parents' timely and sensitive responses in terms of giving feedback and expressing support and care while sharing their training-related things in a daily basis (Quotation 1, 2, 3). SS2's father alluded how he responded his daughter's feelings and sharing in a considerable and sensitive way (Quotation 4). Furthermore, both extracts from SS2 and her father also pointed out the importance of being responsive timely particularly during some key occasions and timing in children's sport (Quotation 5, 6). These sport-specific attachment scenarios seemed to be very similar with child-parent interactions in the context of academics (Quotation 7, 8, 9). Specifically, SS1 indicated although his mother might be physically absent in his school life quite often, but she would still find the time to express her emotional support timely in some important occasions (e.g., exams) (Quotation 10). SS2 also alluded a similar way of her father's expression of sensitive and timely care in her study and that might be conducive to her trust in father's love. Like, she felt that her father seemed not to check on her study much, but she interpreted it as a sign of father's trust because she could always feel his care on her difficult moments (Quotation 10, 11).

Table 2. Salient quotations across the contexts within the theme of timely and sensitive responsiveness

Secure attachment in the context of sport	Secure attachment in the context of academics
(1) I always like to share my sport-related things with my dad. He is also willing to listen to what happens in my sport. (SI7, boy-father bond)	*(7) I like to chat with my mum about what happens in school. She also likes to ask… (SSI, boy-mother bond)*
(2) When we talk about something relating to my sport, I can always speak freely…I don't need to worry what I should say and shouldn't say…it's pretty free. He always commented on what I said, he didn't brush me off…I feel relaxed talking with him. (SI7, boy-father bond)	*(8) I always like to tell her what I have learnt recently, share my learnt knowledge or my school life with her…she always responds to my feelings in a positive and encouraging way…it makes me feel good. (SSI, boy-mother bond)*
(3) Dad and me, we are like good friends…when I come back from my training, I always like to share what happens in my sport with him. (SS2, girl-father bond)	*(9) I feel like she cared about my studies, because when I talk my school-related things over with her, she always responds to my feelings, and I think it's enough for me. I am satisfied she can support what I am doing (SSI, boy-mother bond)*
(4) She normally talked about her sport training and competition when she came back home…whatever she won or lost, I always told her not to push herself too hard, just do her best…I wouldn't respond badly if she didn't do well, it's just an exercise. (SS2's father)	*(10) Actually…he didn't really interfere with my studies, he thought I can handle it well…so he wouldn't really need to interfere too much…he knew I stayed quite late if I had an exam next day, then he would tell me not to stay up too late…otherwise, he wouldn't interfere my studies, I could feel his care in this way. (SS2, girl-father bond)*
(5) He didn't really interfere with what I was doing in my sport, I just need to behave well and don't do something bad, that's all…but when I needed his help, he would always try to give it (SS2, girl-father bond)	*(11) My mum's workload is very heavy, she always needs to do her jobs in several places. She didn't really have time to attend my school-related events, but she cared about them. Like… she would ask about my feelings or how's it going in school after my exams. (SS1, boy-mother bond)*
(6) I didn't really ask for something in her sport, it all depended on her interests, I was all fine with her choices… I didn't want to interfere at all …but if she asked something for her sport, I would always support her. (SS2's father)	

Contrasted to secure attachment-related interactions in the contexts of sport and academics, insecure attachment characteristics in both contexts were also identified in this theme. The examples of *secure* interactions in *sport* (see Table 2), suggested that parental (emotional) responses toward children's feelings and needs in a sensitive and timely approach could be a key point to bring about their willingness, openness, and freedom to communicate as well as trust in parents' love and care (e.g., Quotation 1, 2, 3). Contrarily, insecure interactions in the context of academics could be characterized as parental (emotional) unresponsiveness (even physically be with children) toward children's sharing of school-related things and these malfunctioning interactions might result in children's low expectations of deservedness in parents' attention, and low willingness to communicate.

> *I didn't feel like to share my school life with mum, we'd normally have opportunity to chat during our dinner time at home…sometimes I would just tell her what teachers asked for parents to do or my exams results, she wasn't really responsive to me…I didn't feel like sharing more things with her…cos I didn't expect she would respond to me anyway…(II4, boy-mother bond)*

> *Me and my mum, we didn't talk much…she didn't ask about my studies much or what's going on in my school life…sometimes I would chat a bit about my school things with her…but she didn't say much back…(II3, boy-mother bond)*

Moreover, from the examples of II3 and his mother showing insecure attachment interactions in his academics, we can see that the other major maladaptive parenting, which is different from secure interactions in sport (e.g., Quotation 1, 2, 3, 4, 5), might be over-responsive and lack of sensitive parenting strategies. That is, II3's mother exerted angry, controlling, and abusive, and lack of understanding responses (even she noticed his negatively behavioural reactions) especially when talking over something about his studies (e.g., study progress, homework, exam reports), and these malfunctioning practices seemed to limit his disclosure of inner voice to avoid negatively emotional and physical responses from mother.

> *I hoped mum and me could have had more positive interactions… I didn't tell her my feelings, cos she had let me feel it was hard to be close to her…I hoped she could have been nice to me in my studies, didn't behave too bossy…(II3, boy-mother bond)*

His mother further explained why she behaved like that and how his son interacted with her and why.

> *If he didn't do well in exams, I would be very angry…I would beat him…then he would run away…(II3's mother)*

> *When we were chatting, he would only report good things, but not bad things…I felt there might be something that worried him, but he didn't feel like to talk, might be his studies was not on track, didn't do homework or didn't know how to do it…he might worry I would shout at him if he told me something unhappy or bad things, so it's better not to mention it…(II3's mother)*

Furthermore, contrasted *secure* parenting strategies in the context of *academics* (Quotation 10, 11) with *insecure* ones in the context of *sport*, the major contextually-differences characteristics were also due to parental over-responsive behaviours in response to children's feelings in sport. For example, IS8 addressed his father's controlling and overreacted behaviours on his sport's performance and his feelings toward father's over-responsiveness.

> *He kept asking me to beat that guy, to win the game…he thought my ability is better than him… but he didn't really compare the skills of others…it was just his intuition…(IS8, boy-father bond)*

From the extracts of IS8's father, it can be seen that his over-responsive parenting might not helpful for releasing his son's stress but enhancing his nervousness during competitions as well as limiting his sharing of emotional experiences with father.

> *I think if you are doing a competition, then you gotta win…I told him…that game looked like it was your game…why you lose it? Then he said he was nervous because I was there…something like that…(IS8's father)*
> *When he came back home, he didn't really say how's it going in his training…sometimes if we knew he was going to a game, we would ask about this…but he didn't really say anything. (IS8's father)*

Empathetic concerns

Both of the contexts of sport and academics seemed to share similar secure attachment-related parenting behaviours, yet, no significant parenting practices between these two contexts could be detected in this theme as well. The major similarity in both contexts is that parents' expression of their understanding and empathy in response to children's feelings and thoughts about their sport and academic-related things. In the context of sport, while children perceived parents' unsupportive and rejected behaviours in the beginning of their participating in sport due to well-meant parental concern (considering children might suffer too much under heavy-loading training routine), parents still shown their encouraging and supportive behaviours through communicating each other's thoughts to appreciate children's feelings and needs (Quotation 1, 2). Children and parents also alluded something similar in the context of academics. For example, parental supportive and uncontrolled behaviours could be perceived as their understanding of, and feeling for, children's mind and difficulties about their study and academic performance (Quotation 3, 4, 5).

Table 3. Salient quotations across the contexts within the theme of empathetic concerns

Secure attachment in the context of sport	Secure attachment in the context of academics
(1) He knew I did training till quite late every day, he asked me to stop at the beginning…but he started supporting me after I told him this is what I want to do and I insisted on it…I think if I hadn't insisted to do sport, he would have told me to quit. (SS2, girl-father bond) *(2) Basically, she would let me decide what I wanted to do and how to do in sport. It's just she wouldn't like to see me suffering from my training because she knew our training was quite tough, so she wasn't really being supportive at the beginning. She hoped I could just focus on my studies. But I told her that I like this sport, and I am willing to put effort into it. Yeah…she agreed with me, so she was willing to support my sport. (SS1, boy-mother bond)*	*(3) I don't feel he puts pressure on my studies because he knows I am not interested in studying. My friends' parents always ask for a lot in their studies, like, keep asking them to attend some after-school courses, but my dad doesn't ask me to do that. (IS8, boy-father bond)* *(4) I felt he wasn't interested in studying, he felt doing sport was more interesting…he did poorly in every exam…to be honest, their teachers even couldn't complete lessens for the whole semester, how can they get good scores on exams because some exam topics weren't even being taught. What can you do? I have no idea…I told him just focus on the teachers' tips, just need to pass exams, that's fine…if teachers aren't available to deal with your questions, maybe you could ask your coaches or senior teammates during breaks? Just make use of your time to figure it out. It was all I could do to encourage him. (IS8's father)* *(5) She knew I didn't do well in my studies, she didn't really ask for something…but I knew she would always support me if only I didn't do anything bad. (SS1, boy-mother bond)*

These well-adapted child-parent attachment-related interactions appeared in the contexts of sport and academics could be the other stories through malfunctioning parental behaviours. Contrasted to secure and supportive parenting strategies in sport, maladapted parenting practices in academics-related scenarios were also found in this theme. For example, *secure* parents in the context of *sport* considered children's interests, needs, and willingness as parenting priorities, so that parents paid much attention on empathizing with children's feelings and thoughts as well as understanding their inner voice and creating shared emotional experiences as a result (Quotation 1, 2). Contrarily, *insecure* parents in the context of *academics* seemed to priorly concern their own needs for children's academic success, instead of children's emotional wellness and academic-related needs. Like, the example of II4's mother shown that she did aware (or aware but choose to ignore) her child was not interested and competent in composition writing, but she did not synchronize her affection, thoughts, and behaviours with II4's writing difficulty and stressed emotion, instead, she used her biased understandings to response his frustration in order to achieve her own sake.

> *Sometimes when talking about his studies, we would get into arguments…cos he wasn't really interested in some courses, sometimes when we talked about it, he would get angry…like he really didn't like composition writing cos he isn't smart enough to compose an essay easily like others…he couldn't…he needed lots of time to complete it…then I would blame him…it's like he wasn't really focused on it. He would say he just couldn't figure it out …yeah…sometimes I would say to him to pay attention on it. Then he would get angry sometimes…would say that he really didn't know how to write. (II4's mother)*

The extracts from children's stand also alluded that they got into arguments with parents were because their expressed feelings, needs, and inner voice were being deliberately ignored or distorted, and these inconsiderable parental responses disconnected the bridge for sharing emotional experiences and coregulation as a result.

> *We always got into arguments because of my exam reports…like I did study hard but I didn't get good marks…then she would say I didn't really work hard at all…I tried to explain it to her but it didn't work at all…I would be very unhappy about it…I hoped she could try to understand me first…let me explain it first...if she still felt I wasn't*

really doing well…then it's fine. But whether it's my problems or not…she just kept shouting at me…(SI5, boy-mother bond)

I don't think she could understand my feelings. I did try to let her know my feelings but she seemed not able to get it…so, I don't feel like to talk about my feelings to her now…I just try to comfort myself…I think we're not on the same page…I tried before…but we had different opinions…she thought I didn't do my job [studies] well but I thought I had done enough…so…I don't talk to her about this anymore, I don't know what else I can say…(SI5, boy-mother bond)

Furthermore, contrasted *secure* parenting strategies in the context of *academics* with *insecure* ones in the context of *sport*, the major parenting differences were also around the issue of parental needs for children's achievement. For example, secure parents in academics priorly considered children's feelings, thoughts, and needs to make their parenting minds and respond toward children's academic-related difficulties, and these parental understanding and empathetic behaviours were also being delivered to children's side as shared emotional experiences (Quotation 3, 4, 5). Contrarily, insecure parents in sport put children's personal interests and feelings behind their own sakes, even though children's uncomfortableness, psychological resistance and rebellious responses have been perceived by parents. The following extracts mentioned from II3 and his mother demonstrated an interaction scenario of emotional disconnection between child and parents.

In the beginning my mom asked me to join this sport, but I didn't really wanna join cos I wasn't interested in it at all…(II3, boy-mother bond)

I asked him to join in this sport team because he is too laidback…but I knew he didn't wanna join at all. I could feel he wasn't okay with it…he wasn't really interested in it…he also told me he wanted to quit, he didn't wanna take part anymore. Then I told him it's impossible. I hope he can keep doing this sport cos he is too laidback…needs some training. (II3's mother)

I would chat a bit about his sport, like, did you run faster a bit? Did your speed increase? Something like that…sometimes we got into argument, he would say something like…why don't you do it. (II3's mother)

Perception of ability beliefs in academics

One of the possible reasons that might contribute to parenting differences across the contexts of sport and academics was identified from the extracts of parents and children as parental perception of children's ability in academics. It can be seen that parents employing some academic-specific malfunctioning strategies in children's study (but not in their sport) recognized children were capable to do well or be successful in their academic-related achievement based on children's previous achievement or comparison with other's performance. For example, the extract of SI7 (security in sport / insecurity in academics) indicated that his father had over and inflexible expectations on his academic achievement because he thought his son was competent and doing well in his study in the past. And this maladjusted belief seemed to frustrate his *autonomy* and *competence* by his father's controlling and unempathetic parenting strategies.

> *I felt my dad had much higher expectations on my studies cos I did much better than others when I was in primary school. But…it was getting difficult for me during secondary school…and maybe…I wasn't really interested in studying either. So, when I had some troubles in my studies, I would just leave it…I meant when I had tried a couple of times in some difficult subjects but it didn't work, then I lost interest…l wouldn't like to try anymore. When my studies were getting worse and worse, my dad still hoped I could keep the same level in my primary school. He asked me to be one of the top in my class…he had very strict requirements about it. He would force me to study those difficult subjects which I wasn't interested in…like Maths. I really wanted to skip this subject and just focus on others…but my dad thought it wasn't a good idea, so…he would force me to work on my Maths…he always sat beside when I was studying Maths, it was really a big pressure. Yeah…so my Maths wasn't in the bottom but still not good though…(SI7, boy-father bond)*

The extract of SI6's mother (security in sport / insecurity in academics) also addressed the similar point that she had much higher expectations to her academic achievement was because she thought her daughter (comparing with her son) was doing much better in her study. It can be seen that this parental belief seemed to give rise to a mother's ambition on her daughter's performance. The maladapted parenting and unrealistic expectations could frustrate SI6's need for *autonomy* (by forcing herself to do better and

better to achieve her mother's expectations) and need for *competence* (by feeling not competent if she did not meet the expectation).

> *I think it's because her exam marks were a lot better than her brother's, I had much higher expectations on her…I would ask her to maintain a certain level, but it would be better if she could keep pushing forward, work much harder. Sometimes if she didn't do well on her exams, I would ask her to pay more effort on her studies. She seemed to have high expectations on herself, like, she would feel she did poorly if her score was below 90. (SI6's mother)*

Contrarily, IS8 (insecurity in sport / security in academics) mentioned that his father knew he was not good at study, so his father has never put too much pressure on it and that made him feel really comfortable in his study. This seemed to reveal the evidence of his fulfilment of need for *autonomy*.

> *He knew I was not good at studying, he didn't ask for anything in my studies at all…even when I failed in my exams, he was still fine with that. I felt very relaxed and comfortable when studying…I didn't feel…he didn't check on my studies because he didn't really care about it…cos if I asked him something I didn't know, he would help me. He knew I was not doing well in my studies, he told me that I just need to do my sport well, low exam marks were fine as long as they were not too low. I could still get into a good university…(IS8, boy-father bond)*

IS8's father also alluded that he suggested his son to attend some after-school courses was mainly because IS8 asked for some help in order to catch up with his delayed progress in English course, and his son seemed to satisfy with his progress afterwards. This example shown that a father's need-supportive parenting was conducive to his son's fulfilment of need for *autonomy* and *competence*.

> *He told me he can't catch up in English, so I sent him to do some after-school courses during weekends…I had asked on his progress…he told me he was doing well…(IS8's father)*

Perception of value beliefs in sport

How parents perceived the values (importance) to their children's participating in sport could be the major reason that contribute to their parenting differences across the contexts and that lead to children's psychological outcomes, especially need satisfaction or need frustration for *autonomy* and *competence*. For example, SI7 (security in sport / insecurity in academics) felt that his father cared more about if he was enjoyed his games, but not the outcomes of his games. This belief of *enjoyment (or intrinsic)* value seemed conducive to his experienced fulfilment of need for *autonomy* especially in his sport.

> *He thought I just needed to have fun and do my best in my games, that's all… he didn't ask for much…he wouldn't ask me to win medals…yeah…not at all…he thought if I had enjoyed my games and put my effort into it…then that was fine. I felt like I could be myself in sport all the time…didn't really need to worry about something or feel pressured…(SI7, boy-father bond)*

Contrarily, IS8's father (insecurity in sport / security in academics) paid more attention on his son's success in sport as his sport was being considered as a condition to get into a good university (*utility value*), but not just for fun (*interest*), and this belief might give rise to some maladapted sport-specific parenting strategies and that could frustrate IS8's need for *autonomy* and *competence* in sport.

> *Cos at the beginning playing table tennis was just a hobby, I didn't really consider it as way to get into a university. It was my dad that told me if I am not good at studying, why not consider it to get into a university. Afterward, my dad would expect me to do well…it made me feel that I gotta win, otherwise I wouldn't feel good…very unhappy…I felt I should do better…but not like what I play now…it's not really what I expected…(IS8, boy-father bond)*

> *In the past he would attend every game…but I felt pretty bad when I lost games…cos when he attended my games, he would complain about why I would be beaten by this kind of player ….I am taller than him…I should do better than him…when he was complaining, sometimes I felt very annoyed…cos I already felt very bad when I lost…and he would drag me to the corner saying these kind of things, he made me feel like I was really bad, I would be very down…so next game, I wouldn't play well also…I don't know how to say…cos it's good he could attend my games, but when he*

came, I wouldn't play much better…I felt pressure…felt like I had to prove I could play well…but I just couldn't…(IS8, boy-father bond)

His father also alluded his attendance of IS8's games seemed to make him nervous then resulted in his poor performance (i.e., frustrating his need for *competence*).

In the past, I would go to watch his games but not anymore now…cos I knew every time when I went to watch his games, he always played poorly [laughs] so I don't attend anymore…cos I don't know if he would get nervous or something…it's just every time when I attended, he didn't play well…so I just left it…cos if you [laughs]….if you always play badly…you will affect others because your team results are affected by your own performance. So, I don't attend much anymore. He may get nervous. (IS8's father)

IS8 further addressed his father's "cost" (negative aspect of value) of money and time on his sport was also the reason that motivated him doing well in sport – and this could be a way that might frustrate his need for *autonomy*.

I felt like my dad has spent a lot of money and time on my sport. I can't waste his money…so I gotta motivate myself to be better…can't lose games…(IS8, boy-father bond)

General Discussion

The ultimate aim of this study was to enhance our understanding of the nature of contextual attachment within child-parent relationships through a qualitative exploration of two main questions – (1) what are children's experiences of contextual attachment across the contexts of sport and academics, (2) what could explain these contextually-different experiences in relation to children's psychological outcomes (in terms of need satisfaction and frustration for competence, autonomy, and relatedness). Furthermore, for achieving our practical goal of providing evidence-based parenting guidance, children's experiences of attachment-related interactions with a given parent across the contexts of sport and academics were critically compared and contrasted in order to find out common well-adapted and malfunctioning parenting strategies. By doing so, it could enable us to understand what kinds

of parental behaviours shared across children's sport and academic life were recognized as secure, supportive, and caring attachment characteristics that could be the essential (or transferrable) parenting indications across (or beyond) these two contexts. Also, those insecure and need-thwarting parenting from contextually-different attachment features could be used to suggest parents to be aware in their daily interactions with children.

Our results shown that two majorly common parenting indications (themes) from children's perceptions of secure *and* insecure attachment features across the contexts were parents' *timely and sensitive/(or over and lack of) responsiveness* as well as *empathetic/(or lack of empathetic) concerns* during their interactions in relation to children's sport or academic-related issues. Specifically, compared to secure perceptions across these two contexts, our children participants demonstrated more open and willing to communication or freely and confidently express their inner voice conflicting with parents' opinions about their sport and school life because they perceived parents' willingness to communicate, understanding of their feelings or difficulties relating to sport and academic-related issues (e.g. frustrating in training or study, lack of interests in study) from parents' synchronic, timely, empathetic, and well-meant interactions with them in a daily basis. These evidences seemed to be fairly in line with previous literature showing similar secure/insecure child-parent attachment characteristics in general (e.g., Bowlby, 1969/1982, 1973; Ainsworth et al., 1978; Cassidy & Shaver, 2002; Pearce, 2017; Mikulincer & Shaver, 2016). For example, Ainsworth (1978) argued that children of a secure attachment relationship with the primary caregiver usually hold advantageous working models of successful proximity-seeking and attainment of security because of consistently attentive, empathic, and supportive responses to emotional needs, especially during vulnerable moments. Children who receive such secure responses from parents may consider themselves worthy of being loved by others and feel confident and able to seek support and emotional relief from parents when they feel upset or stressed.

Contrasting secure and insecure attachment characteristics across the contexts of sport and academics (namely, children's contextually-different perceptions), it can be seen that parents' over or lack of responsiveness and lack of empathetic concerns were also two main attachment features perceived from insecure contexts which were different from children's secure attachment-related experiences in the other context. For example, our children participants reporting their low expectations toward parents' positive responses or lack of willingness to communicate because they experienced parents' unresponsive/passive or controlling/demanding and unempathetic behaviours during their sport or academic-related

interactions. These evidences seemed to be in line with Pearce's (2017) claims that insecure child-parent attachment interactions were characterized as parental distant, unresponsive/overreacted, and emotional unavailable, and that might bring about children's low expectations of deservedness and reduced shared emotional experiences.

Furthermore, the potential reasons resulting in children's perceptions of contextually-different attachment might be parents' perceptions of children's ability in academics and the value for children's participating in sport, and that could contribute to children's experienced need satisfaction and need frustration particularly for *competence* and *autonomy* in both contexts through context-specific need-supportive or need-thwarting parenting strategies. Specifically, children of security in sport and insecurity in academics perceived parents have over expectations in their studies (believing they could do well based on children's previous achievement) but more value on their experiences of enjoyment (intrinsic/interest value) in sport. Contrarily, children of insecurity in sport and security in academics perceived parents have sensible expectations which are in accordance to children's ability (how much they could achieve) in studies but more value on children's success in sport due to future career concern (utility value). These context-specific parenting beliefs (as triggers) seemed to induce parents' ambition on children's academic achievement and sport performance then employ controlling and unempathetic strategies to frustrate their need for autonomy (e.g., forcing children to do better and better to meet parents' over expectation) and competence (e.g., children poor self-concept if they did not meet the expectations.

Our findings seemed to support previous research in exploring the associations between malfunctioning parenting and children's psychological wellness. For example, Carr and Weigand (2014) argued that children exposed to "performance-oriented" parental motivational climates might be more likely to experience thwarted needs for autonomy, competence, relatedness, and associated negative emotions (e.g., anxiety, stress, pressure) through controlling and unsupportive parent-child interactions, especially when children are not able to meet parental requirements. Parental conditional regard (PCR) and achievement by proxy distortion (ABPD) are examples from the literature of controlling parenting practices in achievement-related contexts like sport and academics (Tofler & Butterbaugh, 2005a; Tofler et al., 2005b; Baldwin, 1994; Deci & Ryan, 1995; Harter, 1993; Assor et al., 2004; Curran, 2018). PCR has been linked to significant psychological costs (e.g., introjected regulation, unstable self-esteem, negative emotions, poor relationships and well-being, perfectionistic strivings and concerns, and competence contingent self-worth) (Assor et al., 2004; Assor & Tal, 2012; Assor et al., 2014; Curran, 2018). Furthermore, "objectification" of

a child has been considered a central mechanism of parental "achievement by proxy" and Tofler et al.'s proposed ABPD spectrum has also been suggested as a mechanism by which children's psychological needs for autonomy, competence, and relatedness are thwarted. We believe that within child-parent relationships, such maladaptive parenting practices could also serve as "contextual cues" that bring about context-specific attachment insecurity with a given parent that may not manifest in other contexts where secure attachment interactions with the same parent may be possible.

Moreover, our findings seemed to be in line with previous similar findings in exploring the associations between attachment relationship and self-determination motivation within child-parent relationships in the context of physical activity and academic that implied the fulfilment of need for competence and autonomy was concerned in children's sport and academic life. For instance, Ullrich-French et al. (2011) indicated that perceived (global) attachment security (especially with mother) could contribute to one's self-determined motivation and participation in physical activity *only* through context-specific need satisfaction for *autonomy,* but through three kinds of psychological needs when in a secure attachment bond with father. Their findings seemed to imply that in the context of *physical activity* individuals might be particularly influenced by the *autonomy* provided from parents (especially mother) and the fulfilment of this context-specific autonomy could be especially conducive to their physical activity-specific motivation and behaviours. Furthermore, Grolnick, Levitt, and Caruso (2017) also argued the sense of autonomy could be concerned by youths especially when they pursue their own interests, like sport and academics.

Practical Implications

According to the findings of this current study, there are some overall recommendations for parenting strategies especially in the context of children's academic-related interactions. For example, we suggested that parents should not to focus on children's previous academic-related achievement or performance to avoid exerting controlling, unempathetic, and demanding practices on their study due to parental unrealistic or over-expectation. Instead, parents should take children's learning ability, what specific challenges they meet in studies, and their academic interest all into consideration so that they could have well-adapted and need-supportive parenting adjustment appropriately and accordingly. Like, willing to appreciate children's difficulties in studies and provide timely and pressure-free assistance in response to their study-related needs. These handy parenting strategies are likely to be conducive to children's autonomy and confidence in their learning.

In sport, parents' values of children's participating in sport was considered in this study as how parents perceived the importance of children's sport could bring about different parenting strategies and that might contribute to children's psychological wellness or illness in their sport. We recommended that parents should put children's sport interest, willingness, and enjoyment in priority, yet how this sport could benefit their children's future academic career. Once parents pay attention on the value of utility, they would concern children's ranking or success in sport and that might give rise to their maladapted parenting behaviours (like, manipulative, ignorance of children's feelings and needs, and over-responsive toward their performance), and that could result in children's attention on parents' emotional and behavioural reactions, but not purely experiencing the enjoyment of their sport then further frustrate their sport competence and autonomy as a result.

Table 1. Details of case study youth participants and their parents (n = 8)

Pseudonym	Gender	Age	Child's sport	Attachment Figure	Figure is coach	Personal Prize	Attachment Characteristic
SS1	M	17	Powerlifting	Mother	No	No	Security in sport Security in academics
SS2	F	17	Woodball	Father	No	No	
II3	M	10	Triathlon	Mother	No	No	Insecurity in sport Insecurity in academics
II4	M	12	Triathlon	Mother	No	Yes	
SI5	M	14	Pole Vault	Mother	No	No	Security in sport Insecurity in academics
SI6	F	11	Triathlon	Mother	No	No	
SI7	M	14	Basketball	Father	Yes	Yes	
IS8	M	14	Table Tennis	Father	Yes	No	Insecurity in sport Security in academics

Table 2. Examples of interview guides with children/parents

1. Do you feel your parent behave differently in your sport and academic-related life? Why do you think so?
2. What do your parent normally behave in your sport-related activities? (e.g. when talking about sporting-related issues - sports practice sessions, time before games, during games, after games, or any other sport-related interactions)
3. What do your parent normally behave in your academic-related activities? (e.g., tutoring courses, homework, and academic-related contests/events.)
4. How do your parent normally behave to your sport or academic-related performance/achievement (e.g. good score in exams, win a game, or bad performance in a competition)? Can you make some examples? (e.g. supportive, pressured or neglect) Why?
5. How do your parent normally behave in response to your feelings and needs, especially when you feel sad, upset or angry? Can you make some examples relating to your sport or academics? How's your feeling?
6. Have your parent ever done anything that made you feel secure and close to her/him in your sport or academics? What was that? How's your feeling?
7. Have your parent ever done anything that made you feel relaxed knowing that he or she is always there you when engaging sport or academic-related activities? What was that? How's your feeling?
8. Have your parent ever done anything that made you feel like she or him cares about your sport and school life? What was that? How's your feeling?
9. Have your parent ever done anything that made you feel hard to talk about your feelings relating to your sport or academics over with she or him? What was that? How's your feeling?
10. Have your parent ever done anything that made you have mixed feelings about being emotional close to him or her when doing your schoolwork? What was that? How's your feeling?

Note. These example questions were a loose guide that served to facilitate in-depth conversations with children. The interviews with parents were also guided by these questions after slightly adjusted wordings.

Chapter 7

General Discussion

In this chapter we firstly provide a summary of the findings in each of four studies conducted within this thesis, followed by some discussions arose from the key findings of four studies. This chapter is organized by the following sections: (1) summaries of the aims and major findings of each of four studies, (2) outlines of major implications and novel contributions for research and theory across four studies, (3) discussions of noteworthy limitations and (4) potential future research directions, (5) cultural considerations within the context of this thesis, and (6) recommendations of practical applications for parenting in relation to youths' sport and academics for the better improvement and promotion of the quality of attachment interactions and youths' psychological well-being (5) summaries of the goals and key contributions of this thesis, as well as a take-home message is also provided in the section of concluding remarks.

7.1 Overview of the findings

The ultimate aims of this project composed of four distinct, but related studies sought to propose a novel concept of contextual parental attachment and explore how context-specific attachment within a specific child-parent relationship in relation to children's contextual and global psychological well/ill-being with the intention of addressing gaps in the literature through an approach of mixed-method methodology. In the following section we provide the relevant information (i.e., research goals, key findings and a short conclusion) of each of four studies sequentially to present the overall rationale of this thesis.

Chapter 3 (Study one): Development and validation of the Traditional-Chinese version of contextual attachment scales in sport (CAS-S) and academics (CAS-A)

Based on our proposed concept of context-specific attachment, and assumed that individuals might hold contextual attachment characteristics in their representations of hierarchical structure within specific relationships, this study aimed to initially develop and validate context-specific attachment instruments in order to measure child-parent attachment patterns in the specific contexts of sport and academics. Due to a series of concerns (mentioned in chapter 3), instead of directly revising existing Western-based (or Chinese-version) attachment instruments to produce sport-specific and academic-specific parental attachment scales (namely CAS-S and CAS-A), we develop and validate these new attachment measures

specified to Taiwanese culture from scratch. A series of procedures for creating rigorous self-report measures were conducted by the guidance (including three phases with nine stages) of psychometric scholars (e.g., DeVellis, 2012; Mclntyre & Miller, 2007; Hinkin, 1995) in our two cross-sectional studies. Phase 1 administrated in study one focusing on the procedures (i.e., item generation and refinement, content validity) of item and scale development demonstrated a good content validity for the final revised pools of 21 sport-specific items and 21 academic-specific items examined by a diversity of panels (composed of psychologists with research backgrounds of attachment theory or psychometric development, teachers, coaches, parents, children in different-age groups). Furthermore, phase 2 in study one focusing on processing item reduction and extraction of factors by conducting EFA indicated the final 7-item CAS-S and 11-item CAS-A meet several criteria of validity (details refer to chapter 3) and are considered as appropriate measurements.

Next, CFA was conducted in phase 3 of study two aiming at confirming the initial structures of CAS-S and CAS-A explored in EFA. Through the examinations of reliability, construct and criterion validity (details see chapter 3), results revealed that the initial pool of 7 items, representing 3 secure items and 4 insecure-avoidant items, in the sport-version scale satisfactorily meet the expected criteria. The attributions of items on the first factor represented a range of feelings and attitudes relating to parental rejections of one's needs, inability in the availability and responsiveness of parents, and barriers to trust and open to parents in the context of sport, it was hence labelled as "insecure-avoidant" dimension. And attributions of items on the second factor represented a sense of faith in responsiveness of parents and one's worth and abilities, and comfort with intimacy and interdependence in the context of sport, it was therefore labelled as "secure" dimension. Similarly, the results of CFA also indicated that the pool of 7 items, representing 3 secure items and 4 insecure items, in the academic-version scale satisfactorily meet the criteria. The attributions of items on the first factor represented a sense of faith in responsiveness of parents, comfort with intimacy and interdependence in the context of academics, it was therefore labelled as "secure" dimension. Moreover, attributions of items on the second factor represented a range of feelings and attitudes relating to inability in the responsiveness of parents, negative affective responses to perceived unavailability of parents, a relatively low tolerance for intimacy, and a tendency to down-regulate one's emotions in the context of academics, it was therefore labelled as "insecure" dimension. CAS-S and CAS-A could be considered as well-validated attachment instruments in their current version and have considerable contributions to existing attachment instruments and research in context-specific parental attachment.

Chapter 4 (Study two): Is parental attachment security contextual? Exploring context-specific child-parent attachment patterns and psychological well-being in Taiwanese youths

The Taiwanese-based CASs developed in the first study provided well-validated measures perfectly for the assessment of sport-specific and academic-specific child-parent attachment within Taiwan culture. Therefore, this study was aimed to initially explore the fluctuations in within-parent attachment security between the contexts of sport and academics, in relation to global attachment patterns and indicators of psychological wellbeing in a contextual and global level. Results shown around 30% of youths reported contextually-different within-parent attachment characteristics, suggesting that a significant proportion of the youth participants in this study perceived their parent differently, in an attachment sense, across the contexts of sport and academics. This is important because it suggests that for some children and young people, parental attachment behaviours can be experienced as inconsistent from context to context. Previous studies (e.g., Tofler & Butterbaugh, 2005a; Tofler et al., 2005b; Rapport & Meleen, 1998) have suggested that in certain contexts parents can take on particular roles or ways of being (i.e., they may be a child's manager, their coach, or have particular hopes, dreams, or ambitions connected to the context and their child's involvement in it) that increase the likelihood that they are experienced by children as less caring and more controlling and may conflict with many of the fundamental aspects of caregiving typically associated with the child-parent relationship.

Moreover, there were some interesting associations between the context-specific attachment patterns and the various outcome variables. For example, global attachment security was related to contextual attachment patterns in that youth who perceived high security across both contexts had the highest levels of global security and youth who perceived high insecurity across both contexts had the lowest levels of global attachment security. Youth perceiving contextually-different attachment patterns between contexts had moderate levels of global attachment security, with those who experienced insecurity in sport / security in academics demonstrating higher levels of global security than those who perceived security in sport / insecurity in academic. It is important to note (although it is at this stage speculation) that the relative importance of a context may, of course, dictate the extent to which it relates to and impacts global attachment perceptions. For example, it may be that the Taiwanese sample and their families in this study placed more powerful emphasis on academics than sport and

their global attachment patterns were therefore more strongly affected by academic context-specifics than by sport.

Furthermore, youths with contextually-consistent security and sport insecurity / academic security both perceived higher need satisfaction in the context of academic than groups with contextually-consistent insecurity and sport security / academic insecurity. This result, demonstrating that youths' experiences of academic-specific attachment with parents could have important impacts on shaping their perceived levels of academic-specific need satisfaction whether the quality of sport-specific attachment is good or bad, supporting the idea of context specificity of attachment patterns in the academic domain in relation to academic outcomes. These findings seemed to partially support our proposed concept of contextual attachment and relevant assumptions. Besides, approximately 80% of our sample reported some degree of difference in within-parent attachment security between contexts and the greater the difference, the higher depression, lower global need satisfaction, and lower self-concept they experienced. These findings are interesting to reflect upon because they suggest that degree of within-parent contextual variation has a significant impact upon psychological wellbeing. This result was also in line with Girme et al.'s (2018) recent findings provided a strong suggestion that the attachment system is flexible and dynamic with regard to specific attachment figures, revealing that fluctuations in attachment security can be detrimental when they occur over extended time periods. This study is an interesting extension to such findings because it suggests that for certain populations and in the context of certain relationships such within-person instability and fluctuation might be understood and illuminated by exploring context-specific differences in attachment behaviours and relational dynamics.

Chapter 5 (Study three): **Does child-parent attachment in the contexts of sport and academics relate to well/ill-being through unique pathways? The mediating role of context-specific need satisfaction and need frustration**

Those findings revealed in study two provided some fundamental information to form the assumptions of this study. That is, results of study two indicated that perceived academic-specific attachment characteristics (i.e., security and insecurity) to some extent affected one's experiences of need satisfaction and need frustration in sport, however, youths' perceptions of sport-specific attachment characteristics seemed not to have this cross-contextual effects on their experiences of academic-specific need satisfaction. Furthermore, perceived academic-specific parental insecurity related to lower self-concept and higher depression, regardless of whether they also perceived secure or insecure attachment experiences with the same parent in

the additional context of sport. Based on these findings, this study further considered the individual contribution of different context-specific attachment schemata within a given relationship because they may each have relatively unique and distinguishable links to adaptive and maladaptive psychological outcomes through one's experiences of need satisfaction and need frustration. Results supported our expected primary and cross-context pathways in both of structural models, which (1) perceived sport-specific and academic-specific security can positively influence youths' self-concept through their experiences of need satisfaction in the context of sport and academic respectively (bright pathway), (2) the influence of perceived sport-specific and academic-specific insecurity on youths' depressive symptoms can be positively mediated by their experiences of sport-specific and academic-specific need frustration separately (dark pathways), (3) cross-contextual effects can also be found in both of our hypothesized mediation models. Generally, this study expressed an important message, that is, the contexts of sport and academics could be two influential within-parent socialization platforms that concurrently exert unique and context-specific pathways responsible for shaping youths' feelings of need satisfaction and need frustration in both contexts and ultimately linking to well/ill-being. This point seems in line with Vansteenkiste and Ryan's (2013) claims of the importance of considering both need satisfaction and need frustration in understanding the mechanism by which attachment characteristics connect to psychological outcomes.

Chapter 6 (Study four): Qualitatively exploring the nature of contextual attachment within child-parent relationship

Based on our proposed concept of contextual attachment and those findings revealed in study one, two, and three, suggesting there is a need to evolve this area of research in a broader sense than self-report alone would permit. This present study was aimed to qualitatively explore the nature of contextual attachment within a child-parent relationship guiding by two key research questions: (1) What are children's experiences of contextual attachment across the contexts of sport and academics? (2) What could explain these contextually-different experiences in relation to children's psychological outcomes? Results shown children's perceptions of parental timely and sensitive responsiveness as well as empathetic concern relating to their sport and academic life were two common secure attachment characteristics across the contexts. Contrastingly, perceived parental over and unresponsiveness as well as lack of empathetic concerns were two shared insecure attachment features across two contexts. These evidences seemed to be fairly in line with previous literature showing similar secure/insecure child-parent attachment characteristics in general (e.g., Bowlby, 1969/1982,

1973, 1982; Ainsworth et al., 1978; Cassidy & Shaver, 2002; Pearce, 2009, 2017; Mikulincer & Shaver, 2016). Furthermore, the possible explanations for how parents' contextually-different behaviours in relation to children's psychological outcomes were (1) parents' over-expectation / sensible expectation on children's ability in academics and that might frustrate / fulfil children's need for competence and autonomy in their academic-related activities, (2) parents' perceptions of interest (enjoyment) / utility value of children's participating in sport and that could be in relation to children's need satisfaction / need frustration for competence and autonomy in children's sport-related activities. These results suggested that if parents could hold sensible expectations on children's ability in academic achievement and value their participating in sport as a personal interest or a way of experiencing enjoyment that might be able to trigger parents' employment of need-supportive strategies to fulfill children's need for competence and autonomy in their sport and academic life. These findings were in line with previous research in the specific contexts of school and sport (e.g., Ames, 1992; Brophy, 1987) strongly suggesting that parental belief systems in relation to a child's ability and their subject evaluation of children's successes and failures serve as influential "contextual cues" that shape children's beliefs, affective patterns, and behavioural responses in a given context.

7.2 Implications and contributions for theory and research

This section is aimed to have a general discussion of the important theoretical and research implications arising from the findings of four studies conducted within this thesis. The implications will be illustrated particularly surrounding three major issues: (1) Attachment can be a contextual concept within a child-parent relationship; (2) The associations between context-specific attachment and youths' psychological well/ill-being; (3) The development and validation of CAS-S and CAS-A. Our discussions will be mainly focused on the research outcomes made within a series of our studies in relation to the relevant theories and research mentioned within the chapter of literature review as well as the significant and novel contributions that the present thesis made to the fields of parenting in sport and academics and the broader attachment theory literature.

7.2.1 Attachment could be a contextual concept within a child-parent relationship

Attachment theory has been labelled one of the last surviving "grand theories" not to have been completely dismissed, replaced, or extensively reworked (e.g., Carr et al., 2013; Mercer, 2011). Despite the ubiquitous nature of some of the theory's fundamental tenets, there are always possibilities for new conceptual development, extension, and revision.

Previously, the stability and change of one's internal working models of attachment have been broadly explored and discussed in the literature (e.g., Carr, 2012; Fraley, 2002; Klohnen & Brea, 1998; Simpson, et al., 2007; Dykas & Cassidy, 2011). Particularly, the relationship between multiple attachment representations (e.g., families, close friends, romantic partners) in one's relational networks across global, domain-specific, and relationship-specific hierarchies has been paid significant attentions (e.g., Overall et al., 2003; Collins & Read, 1994; Fraley & Davis, 1997; Trink & Bartholomew, 1997; Pierce & Lydon, 2001). Nevertheless, less conceptual attention has been devoted to one's variation in attachment patterns "within" a single attachment relationship (e.g., Gillath et al., 2016; Girme et al., 2018). Our literature review and empirical studies conducted within this thesis especially contribute to this overlooked area in attachment theory in terms of within-parent variation in attachment across contexts.

That is to say, through pulling the relevant literature together we initially proposed a plausible concept of contextual attachment within a child-parent relationship (refer to chapter two). Subsequently, in order to evidence that individuals are able to develop and identify context-specific attachment relationships with parents, we sought to find out the contextually-different attachment combinations across the contexts of sport and academics with a sample of Taiwanese adolescents, and then further investigate how youths' contextual attachment combinations in relation to their context-specific psychological well/ill-being (*study two*). The results of *study two* revealed that four possible combination groups (i.e., contextually-consistent in security, contextually-consistent in insecurity, security in sport / insecurity in academics, insecurity in sport / security in academics) identified from a sample of youth participants. Around 30% of them reported contextually-different within-parent attachment characteristics (i.e., security in sport / insecurity in academics, insecurity in sport / security in academics), suggesting that a significant proportion of Taiwanese youth participants perceived their parent differently, in an attachment sense, across the contexts of sport and academics. Furthermore, we also assumed if youths are able to hold context-specific attachment schemata, their experiences of (secure and insecure) attachment with parents in a specific context should have dominant impacts on shaping their perceived levels of need satisfaction and need frustration in *that* context no matter the quality of parental attachment in the other context is good or bad. However, results in *study two* only supported that the idea of contextual specificity of attachment patterns in the academic domain was related to academic-specific outcomes. The associations between sport-specific attachment style and sport-related outcomes were not salient. We thought this might be because a person's

academic-specific attachment representations were relatively prevalent than sport-specific schemata on shaping one's experiences of need satisfaction and need frustration in the sport domain.

Besides, *study four* adopted an approach of qualitative interview to investigate youths' experiences of contextually-different attachment across the contexts of sport and academics, findings also showed that youths' experiences of interactions with an assigned parent across two contexts could reflect attachment-related characteristics (i.e., secure and insecure). Collectively, these findings are important because they suggest that for some children and young people, parental attachment behaviours can be experienced as inconsistent from context to context, which also supports our claims that attachment can be considered as a contextual concept within a child-parent relationship, especially for the contexts of sport and academics. The majority of researchers have tended to examine child-parent attachment patterns in specific contexts on a global level and used global parental attachment orientations to explore the associations with children's psychological outcomes. This approach is likely to have biased research findings as individuals' global schemata within a child-parent relationship is just the top node in a hierarchical network of attachment working models, some of which may apply only to certain kinds of contexts and others of which may apply in certain contexts (Mikulincer & Shaver, 2003). Our preliminary idea and findings regarding contextual specificity within a given child-parent relationship added to the literature of attachment theory by providing a promising idea of contextual attachment for future investigations in the influences of child-parent attachment (or broader relational domains – athlete/coach, student/teacher, friendships, romantic relationships) on one's psychological outcomes across particular contexts. Furthermore, this novel perspective proposed in this thesis also made a contribution in the providence of a foundation for further exploring how such context-specific perceptions fit into broader hierarchical organization of attachment models in one's relational network.

7.2.2 The development and validation of CAS-S and CAS-A

A number of attachment-related measurements have been utilized, revised, or developed in the explorations of interpersonal relationships (such as child-parent, athlete-coach, student-teacher bonds) in relation to one's psychological outcomes within the contexts of sport and academics (e.g., Felton & Jowett, 2013a, 2013b, 2017; Jowett, 2008; Davis & Jowett, 2010; Davis & Jowett, 2013; Riley, 2009; Granot, 2016). However, there are several major problems regarding existing attachment instruments used to examine close

relationships within the specific contexts (e.g., sport/PA, academics). More specifically, past studies tended to test parental attachment within sport/PA and academics/education on a global level (either within parental relationship or multiple close relationships) and use *global* patterns of attachment to predict *context-specific* psychosocial outcomes (e.g., academic/sport-specific BPNS, self-concept). For example, research in the context of PA has employed attachment-related measures (e.g., IPPA, IPPA-R) to evaluate adults/adolescents' perceptions of general attachment relationships with parents (e.g., Ullrich-French et al., 2011; Li et al., 2016; Lisinskiene & Juskeliene, 2019). Studies in the context of sport have used ECR and AAQ to assess athletes' general experiences with an assigned parent or in general close relationships (e.g., Felton & Jowett, 2013a, 2013b, 2017; Carr, 2009; Carr & Fitzpatrick, 2011). Likewise, literature in the context of academics/education has administrated assessments (such as ASS, CRA, ECR-R, and VASQ) to evaluate adults' and children's perceptions of general attachment relationships with an assigned parent (e.g., Maltais et al., 2015; Newland et al., 2010, 2013; Wright et al., 2014; Carr et al., 2013).

It can be seen that their research contexts were focused on specific contexts (e.g., sport, PA, academics), however, none of research (if any) has truly measured *parental* attachment in sport and academics on a *context-specific* level by using *sport/academic-specific, child-parental,* attachment instruments. Some potential psychometric problems and conceptual inconsistencies might emerge when researchers utilize measurements developed for examining attachment in a *global* sense to test a *contextual-level* attachment relationship. For instance, the item, such as "I enjoy helping my parent whenever I can" in West et al.'s (1998) AAQ might be not a sensible description of child-parent attachment interactions within the context of academics and sport. Apart from that, attachment instruments developed within a specific context (e.g., sport, coaching) or relational domain (e.g., athlete-coach dyad) might be inappropriate to be used in a different context (e.g., academics, teaching) or relational domain (e.g., child-parent dyad) (e.g., Gill, Dzewaltowski, & Deeter, 1988, Nelson, 1989; Vealey, 1986). For example, we thought the items, such as "I am concerned that my coach will find another athlete that he/she prefers" or " I often worry that my coach does not want to coach me anymore" in Davis and Jowett's (2013) CAAS might not be suitable descriptions of one's cognitive and emotional attachment representations within the context of child-parent interactions in sport. This thesis has made considerable and innovative contributions to the framework of attachment theory and the relevant literature by proposing a novel concept of contextual parental attachment (refer to chapter two) as well as developing and validating contextual attachment scales (i.e., CAS-S and CAS-A) that are specific to

assess *parental* attachment in a *context-specific* level, particularly in the contexts of sport and academics (see *study one*).

More specifically, results in *study one* showed that the attachment constructs of our traditional-Chinese versions of contextual attachment scales are different from the existing Western-based measures. For instance, CAS-A is composed of two dimensions of attachment (i.e., security and insecurity) which is inconsistent with the existing attachment instruments employed within the contexts of academics/education, revealing two dimensions of attachment structures, such as anxiety and avoidance (e.g., ECR-R; Fraley et al., 2000) or proximity seeking and insecurity (e.g., VASQ; Bifulco et al., 2003), and three dimensions of structures, such as availability, acceptance, and rejection (e.g., CATSBS; Al-Yagon & Mikulinver, 2006) or avoidance, ambivalence, and secure exploration (e.g., CRA; Roggman et al., 2001). Furthermore, CAS-S is composed of two dimensions of attachment (i.e., security and insecure-avoidance) which is incongruent with the existing (Western-based) measurements utilized within the contexts of sport/PA/coaching, revealing two dimensions of attachment, such as anxiety and avoidance (e.g., CAAS; Davis & Jowett, 2013) and three dimensions of attachment, such as security, anxiety, and avoidance (e.g., CAAS; Davis & Jowett, 2013), communication, trust, and alienation (e.g., IPPA-R; Gullone & Robinson, 2005) or angry distress, availability, and goal-corrected partnership (e.g., AAQ; West et al., 1998).

We thought these unique constructs and items of CASs pioneered on the broader field of attachment literature and measurements. For example, our ideas and findings in the development of contextual attachment assessments might stimulate more academic discussions in the concept of contextual attachment (e.g., whether the concept of contextual attachment within a child-parent relationship can be transferrable to other relational domains, such as friendships or romantic relationships?). Moreover, it may also enlighten scholars some novel research thoughts and routes regarding contextual attachment measures (e.g., whether it is necessary to develop other contextual attachment scales that are specific to the relational domains of interest? Whether CASs can be utilized to explore the associations between contextual attachment and other outcome variables of interest with different populations or within various cultures?). Nevertheless, future research should be cautious in using CASs to investigate contextual parental attachment outside Taiwan in that CASs are developed and validated within a specific context of traditional-Chinese culture. Furthermore, Taiwanese/Chinese-based attachment measurements are still very rare (e.g., IPPA-C; Sun, 2004; ECR-C; Mallinckrodt & Wang, 2004; RSQ-C; Wang & Neville, 2006; RAAS-C;

Huang & Chen, 2011) and those existing traditional-Chinese instruments are all revised and validated from specific "Western-based" measures used to examine parental attachment in a *global* level. Our traditional-Chinese version of CASs is developed and validated within the context of Taiwan, particularly adding contributions to the existing attachment relevant research with the population of Taiwanese/Chinese or within the culture that is similar to the Confucian values.

7.2.3 The associations between youths' within-parent variations in attachment across contexts and contextual and global psychological well/ill-being

To date, a great deal of studies have examined the influences of individuals' attachment patterns with parents on their psychological and achievement outcomes within sport/PA and academics/education (e.g., Felton & Jowett, 2013a, 2013b, 2017; Jowett, 2008; Davis & Jowett, 2010; Riley, 2009; Granot, 2016). However, most of research in examining parental attachment within specific contexts neither specified a particular parent (i.e., mother or father) nor context (i.e., sport, academics). In other words, previous studies normally assessed child-parent attachment in a global sense and use *global* patterns of attachment to predict *context-specific* psychosocial outcomes (e.g., academic/sport-specific BPNS, self-concept). This might be because the concept of *context-specific* parental attachment has not been paid much attention and none of suitable measurements for evaluating it. In this thesis we have fully considered and expressed these issues through literature review and a series of empirical research. Specifically, the development and validation of CASs in *study one* would provide researchers appropriate instruments to assess qualitative fluctuation (i.e., whether youths' attachment schemata in relation to a particular parent could vary across contexts?) and quantitative changes (i.e., whether the degree of fluctuation in parental attachment security between contexts relates to youths' global psychological outcomes?) of attachment in *study two*. For example, findings in *study two* indicating that approximately 80% of our sample reported some degree of difference in within-parent attachment security between contexts and the greater the difference, the higher depression, lower global need satisfaction, and lower self-concept they experienced. These findings are interesting to reflect upon because they suggest that degree of within-parent contextual variation has a significant impact upon psychological wellbeing. These results are not only in line with previous findings (e.g., Girme et al., 2018) revealing that perceived fluctuations in attachment security across various significant figures can have pronounced impacts on wellbeing (particularly for securely attached individuals with promising beliefs and stable expectations of relationships),

but also have unprecedented contributions to the broader areas of attachment theory. That is to say, our findings provide an interesting extension of Girme et al.'s research, suggesting that for certain populations and in the context of certain relationships such within-person instability and fluctuation might be understood and illuminated by exploring context-specific differences in attachment behavior and relational dynamics. In certain cultures, children and young people's lives may be organized around clearly defined contexts that to some extent help to demarcate differences in attachment patterns.

Besides, in *study two* youths' perceptions of academic-specific attachment characteristics have been indicated to have a significant prediction on their experiences of need satisfaction and need frustration in academics and to some extent affect their psychological outcomes in sport. Also, perceived academic-specific parental insecurity have been found to significantly relate to youths' lower self-concept and higher depression, regardless of the quality of their attachment experiences with the same parent in the context of sport. These findings of *study two* provided a research rationale for *study three* to further consider that the individual contribution of different context-specific attachment schemata within a given child-parent relationship may each have relatively unique and distinguishable links to adaptive and maladaptive psychological outcomes through one's experiences of context-specific need satisfaction and need frustration. Collectively, the results of *study three* supported our hypothesized primary and cross-context pathways in both of structural models, revealing (1) perceived sport-specific and academic-specific security can positively influence youths' self-concept through their experiences of need satisfaction in the context of sport and academic respectively (bright pathway), (2) the influence of perceived sport-specific and academic-specific insecurity on youths' depressive symptoms can be positively mediated by their experiences of sport-specific and academic-specific need frustration separately (dark pathways), (3) cross-contextual effects can also be found in both of our hypothesized mediation models.

Generally, results in *study two and three* delivered an important message, that is, the context of sport and academics could be two influential within-parent socialization platforms that concurrently exert unique and context-specific pathways responsible for shaping youths' experiences of need satisfaction and need frustration in both contexts and ultimately linking to well/ill-being. Our findings are not only in line with Vansteenkiste and Ryan's (2013) claims that it is importance to consider both need satisfaction and need frustration in the explorations of the mechanism by which environmental characteristics (i.e., need-supportive or need thwarting) connect to psychological outcomes, but also have noteworthy

contributions to the attachment literature surrounding this area. That is, Vansteenkiste and Ryan's (2013) proposed model has been applied to explore how students/athletes' optimal and non-optimal functioning concurrently influences on their well/ill-being in the context of teaching in PE (Behzadnis et al., 2018; Haerens et al., 2015) and coaching in sport (e.g., Bartholomew et al., 2011). Apart from sporting and PE contexts, however, past research exploring this mechanism was neither within other achievement fields (e.g., academics) nor cross contexts. In other words, the majority of previous studies has only examined this mechanism in a single field (e.g., PE, sport) within specific relational contexts (e.g., teaching, coaching), yet across both schoolchildren's major achievement domains (i.e., sport, academics) within a given parenting context (e.g., child-mother, child-father). This is an important missing part in past literature which this current project (especially in *study three*) has seriously concerned and made novel contributions on this issue.

7.3 Cultural considerations within this thesis

Whilst findings from a series of our empirical studies within this thesis have made substantial contributions to the fields of the relevant theories and literature, some cultural concerns, particularly with regard to measurements of attachment and the characteristics of Taiwanese parenting in children's sport and academics (mentioned in chapter two) need to be discussed, together with our findings as a whole, in order to provide a reference for future studies (e.g. the applicability of measurement and generalisability of research findings within this thesis). More specifically, we have made an effort to articulate the rationale of the development of the traditional Chinese version of CASs by illustrating the plausible cultural differences in ideal attachment characteristics between Western and Eastern (e.g. Taiwan) countries, based on a view of cultural values and individuals' beliefs of self-construal within romantic relationships. For example, we have considered that ideal parental attachment characteristics might be different between people from Western and Eastern (Asian) cultural backgrounds. Compared to the Western culture that pursues individualistic values (which consider self and others as separate units, favouring distinct self–other boundaries, unique personal abilities and dispositions, self-interest pursuit, and direct self-expression), Eastern/Asian (e.g.Taiwanese) culture emphasises collectivistic values, encouraging interdependence and connectedness between individuals (Markus & Kitayama, 1991; Wang & Mallinckrodt, 2006). These differing values (individualism versus collectivism) are likely to facilitate people's formations of different beliefs of self-construal (independence versus

interdependence), and representation of people's feelings, attitudes, and behaviours towards their interpersonal relationships.

For the majority of Taiwanese people, who hold interdependent values, self-construal raises more concerns about harmonious interpersonal relationships, indirect self-expression, meeting their social obligation, and others' views of them in order to maintain their self-esteem and social status (e.g. Wang & Mallinckrodt, 2006; Wang & Scalise, 2010; Wang & Song, 2010). Also, they are more willing to sacrifice their personal needs and goals for the benefit of their social reference group because they consider themselves, as part of a set of social relations, to be inseparable from the belonging, relational context (Markus & Kitayama, 1991; Triandis, 1996). On the contrary, Western people normally hold independent self-construal, believing that appropriate behaviours and attitudes within romantic relationships should be performed with a certain balance between independence and obligation, reasonable expectations for their partners' support, and an appropriate level of one's worth and esteem in the eyes of their partner. This type of belief is concerned about issues such as how to communicate their needs and feelings to their partners, when and how to deal with their conflicts, and how much support and response to expect from each other. These beliefs are very much in line with Western scholars' conceptualisation of the attributes of secure attachment within close relationships (Wang & Mallinckrodt, 2006). However, Taiwanese beliefs regarding ideal attachment characteristics are predominately shaped by beliefs in interdependent self-construal, which seem to contradict the Western-based conceptualisation of the working attachment models. For example, a behavioural indicator representing secure attachment characteristics on a Western-based scale (ECR-S; Brennan et al., 1998), is such as 'I tell my partner just about everything'; this is seemingly reasonable reflecting securely attached people's normal interactions with their romantic partners within Western culture. However, it could be seen as 'representative of a quite immature and selfish burdening of one's partner with what should remain a private concern.' (Wang & Mallinckrodt, 2006, p.193) within Asian (Taiwanese) culture.

Furthermore, several cross-cultural attachment researchers (e.g. Wang & Scalise, 2010; Wang & Mallinckrodt, 2006; Rothbaum et al., 2000; Takahashi, 1990) have suggested that attachment constructs and self-reporting instruments developed and validated within the context of the Western culture might not be readily applicable to Asian populations (e.g. the Taiwanese) without considering that specific cultural beliefs and norms (e.g. collectivistic values, beliefs of interdependent self-construal) could result in Asian people having biased scores and responses on western-based self-reporting measures. For instance, a number of

studies (e.g. You & Malley-Morrison, 2000; Malley-Morrison et al., 2000; Rastogi & Wampler, 1999; Ditommaso et al., 2005) comparing the cultural differences in people's perceptions of attachment styles within their close relationships have indicated that, compared with Western populations, Asian people (e.g. Korean, Asian Indian, Chinese, Taiwanese) reported higher scores on the attachment dimensions of preoccupied/ambivalent/anxious (especially for males) and avoidant (especially for females), as well as lower levels of attachment security on Western-based attachment instruments. However, these scores on Asian's reports might not accurately reflect their real attachment orientations within the context of their own gender in their own cultures as Western and Asian people hold different beliefs of culturally ideal attachment, which are likely to bias Asian's reported scores on Western-based attachment measures. In other words, Asian people reporting a higher level of attachment anxiety and avoidance on Western-based scales might be identified as being an insecurely attached population from the perspective of Western culture, but this type of population could be categorised as securely attached people within the context of Asian culture. This might be because most Asian people favour interdependent self-construal and seek approval and recognition from their partners, as well as worrying about being abandoned in their romantic relationships, which might stimulate their development of higher levels of attachment anxiety (e.g. Wang & Scalise, 2010; Wang & Mallinckrodt, 2006). Moreover, some of them (specifically females) might prefer not to exhibit straightforward methods of communication, overt expressions of personal emotion, feelings, and thoughts, as well as having personal needs from their partners that are more likely to foster their development of higher levels of attachment avoidance (e.g. Wang & Scalise, 2010; Wang & Mallinckrodt, 2006).

In study one we have taken the above-mentioned cultural differences into consideration for the development of our traditional Chinese version of CASs; i.e. we have considered that the majority of Western-based scales have not been tested for their conceptual and metric/scalar equivalence across cultures. We therefore preferred to adopt a thoroughly cultural-concerned approach for scale development (see details in chapter three), instead of validating specific Western-based attachment instruments for use in Taiwanese participants. Results of our validations of the CASs indeed show that the attachment constructs of our traditional Chinese versions are inconsistent with the existing Western-based measures. For instance, CAS-A is composed of two dimensions of attachment – security and insecurity – which is incongruent with the existing attachment instruments utilised within the contexts of academics/education (e.g. ECR-R; Fraley et al., 2000; VASQ; Bifulco et al., 2003; CATSBS;

Al-Yagon & Mikulinver, 2006; CRA; Roggman et al., 2001). Furthermore, CAS-S is composed of two dimensions of attachment – security and insecure-avoidance – which is also inconsistent with the existing measurements employed within the contexts of sports/coaching (e.g. CAAS; Davis & Jowett, 2013; IPPA-R; Gullone & Robinson, 2005; AAQ; West et al., 1998).

More specifically, although the structures of CAS-A and CAS-S are different from the majority of attachment instruments developed within Western culture, the constructs of both scales seem to be in line with Taiwanese cultural values and norms in close relationships (i.e. an interdependent self-construct), as well as in parenting beliefs and behaviours across children's sporting and academic contexts. For example, in both scales, the attributes of items on the secure dimension of attachment reflecting a sense of faith on parents' responsiveness and comfort with intimacy and interdependence within the contexts of sport and academics is in accordance to collectivistic values that encourage interdependence and connectedness between individuals. It is noteworthy that in CAS-S, the attributes of items on the insecure-avoidant dimension of attachment represent a sense of parental rejection, inability to obtain parents' availability and responsiveness, and barriers to trust and openness to parents in the context of sport. However, in CAS-A, the attributes of items on the insecure dimension of attachment reflect more complex feelings and emotions combining avoidant and anxious attachment sense, such as inability to obtain parents' responsiveness, negative affective responses toward parents' unavailability, and a tendency to down-regulate emotions in the context of academics. These insecure attachment representations on both scales (labelled insecure-avoidance in CAS-S and insecurity in CAS-A, respectively) are also in line with Taiwanese beliefs of interdependent self-construal, facilitating indirect communications, worries about not belonging to social groups, and reluctance to express personal needs or ask for help from others.

In contrast, the dimension of insecurity in CAS-A representing a mixture of affective and behavioural indicators reflects both anxious and avoidant attachment representations, but the insecure-avoidant dimension in CAS-S only reflects relevant avoidant characteristics. This is probably because Taiwanese parenting norms with regard to schoolchildren's academics are dramatically affected by the Confucian values that promote the value of being well educated in order to attain higher social status in the future. Thus, parents might not only set high standards for children's academic performance, but also invest considerable time, effort, and resource in their children's education in order to ensure their academic success (e.g. Braxton, 1999; Chao, 1996; Kim, 2002). Obedience to parents and the practising of filial

piety (i.e. a sense of obligation to repay or honour one's parents' sacrifice, emotional support, or material investment for their pursuit of education); however, motivates Taiwanese pupils' willingness to accept their parents' advice, to achieve academic excellence and attain parental expectations. On the other hand, children's emotional and behavioural responses (e.g. worry about not being valued and appreciated if they cannot meet their parents' requirements) towards parents' academic-specific beliefs and behaviours in an anxious attachment sense are also likely to be triggered and intensified in the academic context.

However, parents might adopt different parenting beliefs and norms in the context of sport. For example, parents might apportion less value (e.g. believing sport is not helpful for children's future success in society) or a different value (e.g. regarding sport as sort of a leisure activity for fun or a pursuit of personal interest) on children's participating in sport as a result of their Confucian-based educational beliefs. We thought that these sport-specific beliefs might encourage parents to employ a relatively autonomous or distant parenting attitude and practices in the context of sport, and this is probably the reason that these items, which reflect children's anxious attachment characteristics with parents, are absent in CAS-S. Overall, we believe that the traditional Chinese version of CAS-S and CAS-A developed in this project could be considered as well-validated attachment measurements and suitable for use in examining sport-specific and academic-specific child–parent attachment relationships within the context of Taiwan (or Asian countries). As mentioned above, however, the development and validation of CASs is based on a thorough consideration of Taiwanese cultural values, and the results indeed reveal some differences between CASs and Western-based instruments. We speculate that contextual attachment measures might be specific to the culture in which researchers develop them. Thus, the applicability of CAS-S and CAS-A could be a concern especially when scholars intend to conduct research outside the context of Taiwan, or in countries promoting different cultural values in interpersonal relationships from Taiwan.

Additionally, findings in study two and three combined deliver an important message, that is, the contexts of sport and academics could be two influential areas of within-parent socialisation platforms that concurrently exert unique and context-specific pathways responsible for shaping youths' feelings of need satisfaction and need frustration in both contexts and ultimately linking to well/ill-being. Furthermore, youths' academic-specific attachment representations with parents have more impact than sport-specific schemata on their psychological-related outcomes. We thought these results might be also specific to Taiwanese culture, that is to say Taiwanese parenting beliefs and norms are subject to

Confucian values in education, encouraging pupils' high aspirations and excellence in academic achievement for decent future social status (e.g. Yeh, 2003; Chao, 2000; Chen & Stevenson, 1995). Parents might also invest considerable time, effort, and resource (e.g. help out with their schoolwork, provide appropriate home atmosphere for studying, pay for cram schools or tutors, restrict their after-school activities) in order to ensure children's promising future. Parents' emphasising the importance of being successful in academics is likely to result in children placing much more weight on academic performance (compared with sport) and their interactions with parents in regard to academic issues (e.g. more concerns about being appreciated and recognised by their parents) (e.g. Braxton, 1999; Chao, 1996; Kim, 2002).

Thus, we suspect the relative importance of attachment representations across different contexts could be recognised and judged by children through their perceptions of parentally delivered cultural beliefs and values in specific contexts. Also, the relative importance of context-specific attachment schemata (e.g. academic-specific representations within Taiwanese culture) might not only have predominant influences on children's well/ill-being in that particular context, but also in other contexts. This current study is substantially grounded in the context of Taiwan; hence, whether these results are likely to generalise to other societies with similar (and/or different) cultural values as Taiwan is still questionable. For example, several cross-cultural studies (e.g. Larson & Verma, 1999; Fuligni & Stevenson, 1995; Stevenson & Lee, 1990; Newman et al., 2007) have indicated that compared with Eastern/Asian (particularly Taiwanese) pupils, Western children (e.g. American) reported spending less time on engaging in academics and extracurricular courses and more time on free play, reading for fun, participating in sports, or self-chosen activities. Whether these differences in children's time spent across various activities between countries could reflect the importance of specific activities valued within particular cultures requires further consideration. Future studies exploring issues relevant to contextual parental attachment are suggested to consider those salient cultural values embedded in the research contexts. We thought it would be beneficial to evaluate and discuss the generalisability of the research findings.

7.4 Limitations of the research

Several limitations that are specific to each of our four studies presented in this project have been discussed in the previous chapters. Nevertheless, a number of potential limitations and weakness appeared from a series of empirical studies are worth to further discussed as a

whole in the following section and that could also be the future directions for further improvement. Firstly, the causal relationship amongst variables of interest might be unable to evidence due to our research design (i.e., correlational/cross-sectional approach) throughout three quantitative studies. More specifically, in *study one* a series of well/ill-being indices (e.g., context-specific need satisfaction and frustration) were employed to test the predictive validity of CASs. However, we were only able to evidence their correlations (but not causal relationships) in that both of CASs and the relevant criterion variables were assessed at the same time point. Subsequently, in *study two* and *three* we explored the influences of contextual attachment variations on youths' contextual and global psychological outcomes through a cross-sectional and correlational design – which is likely to result in the causal relationships among variables of interest to be questionable. Future studies are encouraged to employ a longitudinal design for better understanding the causal relationships between contextual parental attachment and the outcome variables of interest.

Moreover, the examination of measurement invariance across genders and ages is absent throughout three quantitative studies – and this could also be a concern in this thesis. Specifically, previous research (e.g., Ullrich-French et al., 2011; Li, Bunke, & Psouni, 2016; Lisinskiene & Juskeliene, 2019) has indicated that boys' attachment schemata with fathers and girls' attachment schemata with mothers are more accessible, applicable, and influential in the prediction of children's wellbeing and domain-specific outcomes. This is probably because father and mother might have different expectations and parenting behaviours on their boy's and girl's engagement in sport and academics. These parenting differences might affect female and male children's attachment-related perceptions (e.g., how they weigh the importance of engagement in sport/academics, how they weigh the unique importance of, and specific needs from, mother and father in their sport/academics in an attachment sense). *Study one* was aimed to develop and validate attachment measurements (i.e., CAS-S and CAS-A) in a sample of Taiwanese youths. However, the examination of gender invariance between the models of male and female youths' attachment relationships with an assigned parent (i.e., father or mother) in CASs validation was absent. Therefore, whether the dimensions and characteristics of CASs among specific child-parent models (i.e., boy-father, girl-father, boy-mother, and girl-mother bond) are consistent or not is still questionable. This weakness could also be a concern, in terms of the accuracy and truthfulness of the results in *study two* and *three* (because CASs were utilized in these studies as part of research instruments). There is a need to further examine this issue in future studies to avoid research bias.

Furthermore, previous scholars have suggested that individuals are likely to develop separate and independent models of attachment for close partners (e.g., parents, peers, romantic partners) across different developmental stages (e.g., childhood, adolescence, adulthood). Certain relationships might carry more weight in relation to the influence they have on individuals' attachment-related cognition, affect, and behavior (Collins & Read, 1994). Hence, the examination of age equivalence of CASs (e.g., late childhood, aged 9-11 years; early to middle adolescence, 12-14 years; middle to late adolescence, 15-17 years) is also needed as attachment constructs might be varied with different developmental stages. Unfortunately, *study one* was unable to consider this issue and that might also render a potential limitation in *study two* and *three*. Future research is warranted to further conduct cross-validation examinations in order to obtain a better view of the construct validity of the measurements.

Additionally, there are other weaknesses with regard to control/confounding variables in *study two and three*. That is, *study two* have considered examining some potential confounding variables, such as gender, competition levels (i.e., club, county, regional, and national levels), if the nominated parent had also been the coach of the child's sport, and if the parent was previously an athlete themselves, in relation to the four subdimensions of contextual attachment (i.e., security in sport, insecurity in sport, security in academics, and insecurity in academics). Results showed that no significant differences were found among four contextual constructs. However, these confounding variables were not considered in the explorations of contextual attachment combinations in relation to youths' psychological outcomes in *study two*, although in *study three* the factor of gender had been tested in relation to all of study variables and no significant differences were found. Previous studies (e.g., Haerens et al., 2015; Behzadnia et al., 2018) in the domain of physical education have indicated that some significant differences existed between male and female youths' perceptions of psychological need satisfaction and frustration as well as well/ill-being indices. For example, compared to girls, boys perceived higher level of domain-specific need satisfaction (e.g., Haerens et al., 2015) and sport competence (e.g., Li et al., 2016), whereas the opposite results were found in Behzadnia et al.'s (2018) study revealing that boys had higher scores on need frustration and negative affect, as well as lower scores on need satisfaction and positive affect than girls. In light of these findings, it would be thorough and prudent to include abovementioned factors and other potential control variables (e.g., age groups, sport types – individual versus team sports, the duration of sport participation) in examining these causal hypotheses. Furthermore, we also thought factors, such as the global

level of child-parent attachment orientations, are also likely to potentially confound the predictions of the contextual level of parental attachment on youths' well/ill-being indices (*study two* and *three*). Perhaps context-specific judgements and ratings will always to some degree reflect a global sense of attachment. Thus, there is necessary to further consider this issue to show that context-specific attachment matters over and above general attachment tendencies in future studies.

The final concern is that the participants recruited throughout four empirical studies was youth athletes, considering the CAS-S is about sports-related attachment. Generally, it is desirable to conduct scale validation on as heterogenous a population as possible. Validating the scale on such biased sample (with highly involved parents, who are also involved in the academic context) might lead to poor discriminant ability in a community sample. That is, the scales might be well suited to detect contextual variation in sport-related attachment for youth athletes, but not for youths less involved in sports. Although the duration of youths' engagement in sport reported in current studies were varied ranging from half a year to more one year, the measurement and conceptualization of context-specific attachment patterns still needs further development. Because the potential restrictions of range and ceiling effects when examining sport-related attachment in athletes in relation to the relevant well/ill-being outcomes are likely to be more salient for youth athletes than for the population at large.

Throughout this thesis, we assumed that the contexts of academics and sport were an adequate reflection of key contexts that played a significant role in our participants' family lives. This assumption may not be an adequate reflection of a context for all families, cultural groups, and individuals. It may be that our sample of young athletes (who likely have a higher investment in sport and whose parents are perhaps more highly involved) are a biased reflection of the sporting context and that both the measure and the findings are less applicable to less athletic youth samples. This also speaks to a need to question whether context-specific measures of attachment-related characteristics can ever be completely generalizable. Perhaps the specific contexts in individuals' lives will always vary and there will either be a need to develop specific measures of context-specific attachment that adequately reflect each given context or to develop a context-specific attachment measure that is adaptable enough to reflect a spectrum of contexts and can be adapted to fit the contexts that reflect participants' lived experiences.

7.5 Future directions

Throughout the four empirical studies conducted within this thesis, the pertinent findings from each of studies have been presented and discussed in the previous chapters. Whilst a number of limitations emerged from the afore-mentioned series of studies, the studies have provided noteworthy clues for future research to improve these research findings and clarify deeper insights and more complex questions with regard to the concepts and measurement in research and theory that are worthy of further investigation. In the following section we attempt to summarise these potential areas for future studies.

An interesting line of inquiry relates to the extent to which we can be sure that the items in our context-specific attachment scales reflect attachment patterns in a *bona fide* sense and not simply parenting practices in a broader sense. This relates to being able to distinguish how context-specific child–parent attachment can be distinguished from context-specific parental behaviour. While the two may be closely connected, there is a need to carefully distinguish them. In study one, aiming for the development of our context-specific measures, we only included, drew upon, and adapted items from validated scales that are attachment-specific and seek only to measure patterns of attachment. By adapting these items (and including items that we felt were relevant to a context-specific assessment of attachment) we sought to preserve validity in relation to a focus on attachment-relevant characteristics and not parental behaviour in general. For example, we assumed that our contextual attachment assessment reflected a context-specific working model consistent with the idea of how attachment is represented in an abstract sense. Subsequently, in study four we further investigated the nature of attachment characteristics by exploring youths' experiences of contextual attachment across sport and academics. Results derived from participants' narratives were able to reflect those abstract attachment-related representations similar to the constructs and characteristics of the contextual attachment scales developed and measured in study one. Nevertheless, the preliminary findings explored in study four seemed only able to evidence our presumptions that child–parent attachment could be a contextual concept and our participants were able to distinguish their sport-specific working models from academic-specific ones. Rooted in the current findings within this thesis, future work in this area would do well to further explore how these cross-context attachment representations relate to, yet differ from, general parental contextual behaviour.

Furthermore, throughout this thesis we assumed that the contexts of academics and sport were an adequate reflection of key contexts that played a significant role in our participants' family lives as well as provided a platform for the development of the context-specific child–parent attachment relationship. Through a series of empirical studies, whilst

we have been dedicated to exploring and evidencing these two achievement-related contexts (i.e. sport and academics), we thought it would be promising to discover more plausible contexts surrounding children's family lives that might also have the capacity to encourage and foster specific representations of attachment in child–parent bonds. It would help to understand how individual variations in attachment across the specific contexts relate to their global attachment schemata as a whole. For instance, research in other performance contexts has identified that some types of parental involvement in performance contexts can invade, interrupt, and be incompatible with fundamental aspects of a caring bond (e.g. Rapport & Meleen, 1998). The researchers argued that their data hinted that the inherent role of managing a child celebrity may conflict with many of the fundamental aspects of caregiving typically associated with the child–parent relationship; i.e. managing a child performer may require parents to adopt a more emotionally distant and objective perception of the child (e.g. in the managerial role perhaps the child is viewed as a source of income or as the means to an end) that is incompatible with features of a caring and secure parental bond. Contexts such as art-related performance (e.g. acting in the television and film industries) could be an interesting line of inquiry for future research. Perhaps, future studies could investigate whether the context of art-related performance (i.e. acting) is also likely to stimulate and form specific representations of attachment in child–parent bonds that may or may not be carried over into other contexts (e.g. sport, academics).

Additionally, some non-achievement domains concerned with young adolescents' safety and health-related issues (e.g. dietary behaviours, sex attitudes and behaviours, restricted and dangerous activities and venues) might provoke parents to hold particular values and beliefs, which then exert specific parenting norms, attitudes, and actions (e.g. strict, unnegotiable, controlling, threatening behaviours) in response to children's behaviours (Grusec & Davidov, 2010). We suspect that these context-specific parenting beliefs and practices are also likely to encourage parents to adopt a more emotionally distant manner in response to their children's emotional needs in order to achieve parenting goals and that might potentially catalyse the formation of children's specific attachment schemata in the context of safety and health. Furthermore, some issues relating to the domains of personal choice (e.g. privacy, preferences, choices of appearance, friendships, and activities) in which adolescents might believe their parents do not have the right to interfere and also expect more autonomy offered from parents are likely to motivate individuals to take parents' well-meant opinions, suggestions, and interventions as overcontrolling or autonomy-thwarting behaviours (Griffith & Grolnick, 2014; Arim, Marshall, & Shapka, 2010). It is plausible that adolescents' beliefs of

self and towards others' behaviours might foster the development of particular (insecure) working attachment models with parents that reflect a variety of cognitively accessible information relating to the context of personal choice and which are distinct from other contexts (e.g. sport, academics).

Collectively, we thought that some key non-achievement contexts surrounding young people's family lives also seem justified to be further explored in order to have a better view of individuals' fluctuations in attachment security across various contexts in relation to their global attachment schemata. Specifically, future research is encouraged to investigate issues such as: (1) what kinds of contexts are likely to promote the development of contextual parental attachment relationships throughout one's developmental stages (e.g. childhood, adolescence, adulthood); (2) what the promising combinations of individuals' attachment with parents across these contexts at each of specific stage could be; and (3) how these variations in attachment across a diversity of contexts at particular stages and throughout one's life can be explained. This also enquires whether future research will need to develop specific measures of context-specific attachment that adequately reflect each given context or to develop a context-specific attachment measure that is adaptable enough to reflect a spectrum of contexts and can be adapted to fit the contexts that reflect participants' lived experiences.

Additionally, another promising line of inquiry derived from the above-mentioned issues is concerned with more complex and thorough research designs and statistical analyses in future studies. Specifically, in each of study two and three we conducted a single study using a cross-sectional approach with self-reporting questionnaires to explore youths' variations in attachment across contexts in relation to their wellness and illness. Study two focused on investigating the influences of child–parent contextual attachment combinations on youths' contextual and global psychological outcomes. Study three aimed to propose two hypothesised moderated-mediation models to further examine how contrasting contextual attachment experiences (e.g. a perceived insecure attachment bond in relation to academics but a perceived secure attachment bond in relation to sport) concurrently influence youths' global well/ill-being indices through mediating roles of context-specific need satisfaction and frustration. Our results in these studies revealed significant and consistent evidence for proving the existence of contextual differences within the child–parent attachment relationships and understanding the associations amongst the research variables of interest. Nevertheless, we would strongly encourage future research to try to reproduce the current results in another study, preferably using a longitudinal design or with the inclusion of data from sources other than the participants themselves (e.g. parent, teacher, coach, or peer

reports). For example, using a longitudinal design would go a long way to providing stronger evidence that one's attachment can vary across contexts as well as a function of the context-specific relationship with parents and the causal relationships between contextual attachment and outcome variables of interest. Researchers may also consider analysing data using a multi-level approach to demonstrate that there is significant variance at the within-person level of attachment (e.g. intra-class correlations), but not at the between-person level or other factors of the child–parent relationship.

Furthermore, there are some final issues that arose from the current findings within this thesis that are worthy of future investigation. For instance, in study one CASs was developed and validated in a sample of Taiwanese youths (though some items were retrieved from Western-based instruments). The structures of the CASs are seemingly different from the existing Western-based state/trait/relational-specific instruments (e.g. ECR-S; Wei et al., 2007; Davis & Jowett, 2013; IPPA-R; Zhang et al., 2011; Gullone & Robinson, 2005). Considering that Taiwanese people's beliefs and norms towards close relationships are not the same as those of Western people (Wang & Mallinckrodt, 2006; Wang & Scalise, 2010; Wang & Song, 2010), we thought that CASs might not be suitable for use in Western countries, but should be able to be utilised in contexts that have similar cultural values (such as Asian countries). Hence, the examination of cultural invariance in CASs could be an important issue in future research. Researchers are encouraged to further validate CASs in other Asian societies with similar cultural norms to ensure the applicability of measurements across Asian countries. For instance, in addition to testing the factorial structure of CASs, we also suggest that future studies could test the independence of attachment types across contexts by testing the four-factor structure of the CAS-S and CAS-A, simultaneously. This would help to determine if attachment security (and insecurity) form distinct factors across contexts. Running this four-factor CFA, instead of the two independent, two-factor context-specific CFAs, would go a long way in helping to clarify our theoretical claims in this thesis. Aside from this, a series of our empirical studies was conducted with Taiwanese adolescents; future studies may consider reproducing our research designs in other populations with similar (or different) cultural backgrounds to evaluate the generalisability of the current findings within this thesis.

Moreover, throughout our empirical studies (aside from study four) we have been dedicated to exploring within-parent variations in attachment across the contexts of sport and academics in relation to youths' perceptions of contextual and global need satisfaction and frustration. Nevertheless, not being able to differentiate between the specific needs (i.e.

competence, autonomy, and relatedness) does reduce the potential impact on our knowledge and the contribution to the literature in this area. It has been indicated that perceived (global) attachment security (particularly with mother) could contribute to one's self-determined motivation and participation in PA only through PA-specific need satisfaction for autonomy, but not through other kinds of psychological needs (e.g. Ullrich-French et al., 2011). This finding seemed to imply that in the context of PA, individuals might be particularly influenced by the autonomy provided by parents (especially the mother) and the fulfilment of this PA-specific autonomy could be especially conducive to their physical activity-specific motivation and behaviours. Therefore, we suggest future research could further examine each of the psychological needs for competence, autonomy, and relatedness within the structure of sport/academic-specific need satisfaction and need frustration within the child–mother and child–father attachment relationships. This might help to further dissect and explore the patterns identified within this thesis. It would provide more insights for understanding how perceived contextually-different parental attachment (e.g. in sport and academics) could influence youths' well/ill-being to which context-specific basic needs are being fulfilled and/or frustrated by the parent (s) (and how).

Finally, within this thesis we have been dedicated to conducting a series of empirical studies with a mixed-method approach, which employed self-reported measurements (study one to three) and interviews (study four) to collect quantitative and qualitative data. It would be promising if future studies were to explore within-person attachment variation using assessment tools that move beyond the traditional self-reporting and interview approach. For example, laboratory-based studies utilising techniques of priming and lexical decision tasks to test the change of within-person attachment characteristics across different contexts could be a way forward. Also, using attachment script assessment (ASA; Waters & Waters, 2006), based on a view of individuals' mental representations can be considered; scripts might help to detect potential contexts within a child–parent relationship in which individuals are able to reflect a variety of cognitively accurate and accessible attachment-relevant knowledge relating to the specific contexts of interest. In other words, based on repeated exposures to the same set of scenarios pertaining to a particular attachment context, individuals should be able to develop an attachment-related script representing a sequence of accurate information for a given event/context, which provides people with a causal–temporal prototype of the ways in which attachment-related situations commonly occur (Waters & Waters, 2006; Umemura et al., 2018).

There are eight key elements of the secure base script proposed by Waters and Waters (2006) that enable researchers to 'evaluate the way in which an individual elaborates attachment-related stories given a set of word prompts' (Umemura et al., 2018, p. 990). A seven-point Likert scale is employed to measure participants' responses. The higher score assigned to stories normally reveals that more key elements of the secure base script are included with richer elaborations, which also indirectly provides evidence that a given close figure of interest is being highly considered as a secure base by a dependent person in a particular context. The current word prompts in the adolescent script assessment have been diversely developed to be employed in various contexts/events (e.g. a party, a tennis match, studying for an exam) (Umenura et al., 2018). Future research is recommended to create the word prompts that are suitable for use in specific life contexts in which the target participants of interest might have particular issues with their parents. This could be a way of discovering more potential parental attachment contexts across various developmental stages.

7.6 Practical implications

Apart from theoretical and methodological contributions made by a series of empirical studies within this thesis, our findings also provided a number of practical implications, particularly in the areas of parenting in sport and academics. As some cultural concerns abovementioned, we cannot be sure if those implications for parenting would be suitable for applying to the realms beyond Taiwan or Asian countries with the similar cultural values. We thought that this issue needs to be paid attention by parents, researchers, practitioners, school staffs (e.g., teachers, coaches) who are interested or working on parenting education and children rearing-related tasks especially in relation to children's sport and academics. Overall speaking, a series of our empirical studies has informed some useful suggestions in the context of Taiwanese parenting in children and adolescents' sport and academic lives. Firstly, parents are suggested to pay much attentions on detecting children's negative or problematic emotions during their difficult moments (e.g., feeling depressed, upset, sad when losing games, having bad performance in sport, failing in important examines). We also encourage parents to play an active role during their conversations with children. For example, showing their interests, supports, cares, or consolations especially when children are not willing to confide their feelings to parents. Plus, exhibiting parents' understanding, empathy, and accessibility in response to children's needs for closeness or comfort could also be promising parenting behaviours. Children's experiences of these optimal parenting practices in academic-related scenarios are especially

beneficial for their overall growth of their self-concept and decrease of malfunctioning and illness (e.g., depressive symptom). This might be because the pursuit of education is largely valued by Taiwanese children and parents inspired by Confusion belief. Therefore, children's inner nutrition obtained from the fulfillment of psychological needs (especially for competence and autonomy) during their interactions with parents in regard to academic issues and difficulties might be able to cancel out the non-optimal effects caused by maladaptive parenting manners (e.g. overcontrolling, unresponsive, or unempathetic behaviours).

Furthermore, findings revealed within this thesis have indicated that Taiwanese parents' particular beliefs and values towards children's sport and academics are likely to trigger their exhibition of well-adaptive or maladaptive parenting practices in response to children's emotional needs, in specific context, in an attachment sense, and that might shape their perceptions of contextually-different attachment with parents. Plus, having greater difference in children's feelings of parental attachment security between the contexts might result in more negative psychological outcomes (e.g., higher level of depressive symptom, low level of self-concept). Thus, we suggested that parents should not over emphasize children's academic-related achievement (e.g., their marks in homework and examine reports) and only regard their performance as academic potential as this might unconsciously drive passionate and ambitious parents to exert controlling, unempathetic, and demanding behaviours towards their children's study in order to ensure that children can perform as well as parents' expectations in academic-related events. Instead, parents are encouraged to hold an empathetic attitude to appreciate children's capacity in academic-related tasks and requirements and focus on those problems and difficulties they encountered in academics. It might help parents to maintain a well-adapted parenting attitude and behaviours, such as willing to appreciate children's difficulties in studies and provide timely and need-supportive care towards their emotional needs. By doing so, it would be beneficial to strength children's feelings of competence and autonomy in engaging academic-related activities.

Moreover, how Taiwanese parents perceive the importance of children's sport is also likely to bring about different parenting strategies and that might contribute to children's feelings of psychological need satisfaction and need frustration when participating in sport. We strongly recommend that parents should consider children's sport interest, willingness, and enjoyment in priority, but not how this sport could benefit their children's future academic career. It is understandable that participating in sport is not valued as much as engaging in academic in Taiwanese culture, unless children's achievement in sport can

benefit their academic development, such as obtaining privileged opportunities to entering decent universities. However, once parents focus on the value of utility (but not the value of interest) for children's participating in sport, they would much concern about children's success in sport (e.g., their ranking in competitions), which might give rise to their maladapted parenting behaviours, such as manipulative, ignorance of children's feelings and needs, and over responsiveness towards their performance. This is likely to especially thwart children's needs for competence and autonomy in sport. Finally, we thought that the contextual attachment measurements (CASs) developed in this project might help scholars, school teachers, sport coachers, clinic practitioners to identify those vulnerable children (i.e., whose attachment experiences with parents are insecure in both contexts of sport and academics or very different from context to context), and then provide practical interventions (e.g. our abovementioned parenting recommendations) to the parents of interest. Due to our concern of cultural difference, it also should be noted that we are not confident to assert that CASs could be applicable to those cultural values in parenting and parental attachment characteristics that are different from Taiwanese norms.

7.7 Concluding remarks

For achieving the ultimate goal of this thesis, a series of cross-sectional studies with an approach of mixed-method methodology was conducted with an attempt to shed light on a potentially unexplored area of attachment theory by forwarding the idea of contextual attachment within child-parent relationships as well as the investigations of how context-specific attachment characteristics are related to children's psychological outcomes. Overall speaking, the major contributions for this thesis were to extend the existing concepts of attachment theory and further propose a unique concept of context-specific attachment in a presumed hierarchical structure of relational network. This is an important un-exploratory area because adding this missing contextual level (in between global and episodic levels) in the attachment hierarchy could help us to be better and accurate understanding of how individuals' variations in attachment security in relation to individuals' psychological well/ill-being in a contextual and global level within specific relationships. And this knowledge would allow more accurate interventions to enhance their global attachment security through context-specific need-supportive parenting strategies. Furthermore, this initially presumed multilevel model within specific relationships provides a conceptual foundation for future research to refine and restructure a more deliberate and thorough model using different methodological approaches.

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